



Annual Public Health Report of the Province of Assam for the year 1940

BY

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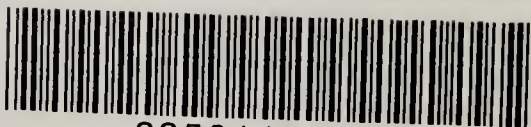
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FROM

LIEUT.-COLONEL A. M. V. HESTERLOW, M.B., CH.B. (EDIN.),
B.SC., P.H. (EDIN.), D.T.M. & H. (EDIN.), I.M.S.,
DIRECTOR OF PUBLIC HEALTH, ASSAM,

TO

THE SECRETARY TO THE GOVERNMENT OF ASSAM
IN THE EDUCATION AND LOCAL SELF-GOVERNMENT
DEPARTMENTS.

Dated Shillong, the 23rd July 1941.

SUBJECT :—PUBLIC HEALTH REPORT FOR THE YEAR 1940.

SIR,

I HAVE the honour to submit herewith the Annual Public Health Report
for the year 1940.

Your obedient servant,

A. M. V. HESTERLOW,
Lieut.-Colonel, I.M.S.,
Director of Public Health, Assam.

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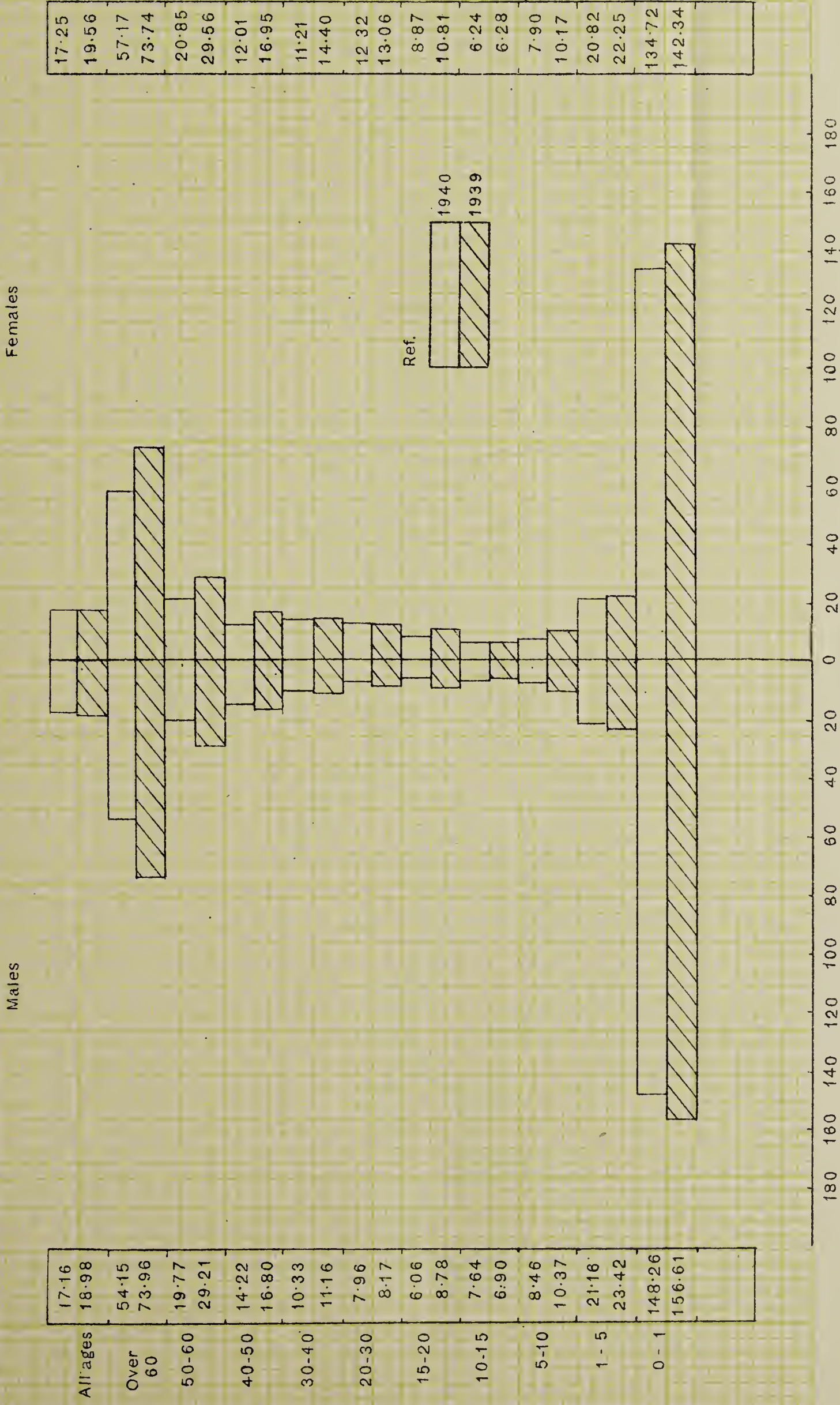
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ASSAM





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Annual Public Health Report of the Province of Assam for the year 1940
CHAPTER I

METEOROLOGY, ECONOMIC CONDITIONS, i.e., PRICE OF FOOD-GRAINS, ETC.

The Meteorologist, Calcutta, has furnished the following note on the meteorological conditions of the Province of Assam for the year 1940.

(1) *The cold weather period—January and February.*—In January no western disturbance affected the weather of the Province and only a few light showers occurred on some days towards the end of the month. Consequently the total rainfall during the month was in large defect, the actual rainfall being only 9 per cent. of the normal. In February, the weather over the Province, was affected by three western disturbances. The first one caused fairly widespread showers in the Province on the 4th and the 5th, the second one was responsible for scattered showers from 10th to 12th and the last one caused fairly widespread rain from 27th to 29th. The total rainfall for this month was in moderate excess and the skies were more clouded than usual. Temperature and humidity during January and February were practically normal.

(2) *The hot weather period—March to May.*—Under the influence of a series of western disturbances and well marked thunderstorm activity abnormally wet weather prevailed in the Province during March. Consequently the total rainfall for the month was in large excess and the skies were more clouded than usual. Maximum temperature during the month was slightly below normal. In April no western disturbance visited the Province and the activity of thunderstorm was feeble. As a result, the total rainfall for April was in large defect, the mean cloud amount was below normal and maximum temperature was in slight excess during the month. Fairly widespread thundershowers occurred in the Province on most of the days of the first three weeks of May. In association with a depression which appeared in the north Bay by the beginning of the 4th week and subsequently filled up off Chittagong coast by the 25th morning, a temporary advance of southwest monsoon took place in the Province and an abnormally wet spell of weather prevailed there in the earlier part of the 4th week. The monsoon then withdrew from the Province and the weather was mainly dry during the remaining part of the month. The total rainfall for May was in slight excess and the cloudiness was slightly more than usual but temperatures were normal.

(3) *The monsoon period—June to September.*—The southwest monsoon again extended into the Province during the earlier part of the 1st week of June and was soon established. The monsoon remained fairly active during the month and the total rainfall for the month was normal. The activity of the monsoon during the month of July and August was controlled by the usual depressions and storms of the season. Fairly widespread rain fell over the Province on several days during these two months, but the rainfall was seldom heavy. Consequently the total rainfall for both these months was in slight defect. Cloudiness was however slightly more than usual in July. The monsoon was fairly strong during the 1st week of September and nearly general rain occurred in the Province during this week. Then there was a temporary lull in the activity of monsoon for a few days. It again strengthened by the latter part of the 3rd week and remained so till 26th when the monsoon began to withdraw from the Province. The withdrawal was complete by the end of September. The total rainfall for September was normal.

(4) *The retreating monsoon period—October to December.*—Except for isolated showers on the first few days the weather was dry in the Province till the 3rd week of October. By the beginning of the fourth week of October a storm from the Bay of Bengal taking a north-easterly track passed inland across the Bengal coast and was centred near Dacca as a depression on the 22nd. It was filled up by the next 24 hours but it caused nearly general rain in Assam in the beginning of the fourth week. The weather was again dry during the remaining days of October. The total rainfall for this month was in slight defect and the cloudiness was slightly less than usual but temperatures and humidity were normal. In November although a few showers occurred in the Province from time to time, the total rainfall for the month was in slight defect. The skies were more clouded than usual but temperatures and humidity were practically normal during this month. In December intermittent showers occurred in the Province during the 1st week. Mainly dry weather prevailed during the next two weeks. During the remaining part of the month local showers occurred on most of the days. The total rainfall for this month was in large excess and the skies were more clouded than usual. Minimum temperatures were slightly above normal.

2. *Economic conditions, prices of food-grains, etc.*—The report deals with the plains districts of the Province. The staple diet of the Province is rice. The average quantity of common rice sold per rupee in 1940 and in the previous 5 years is shown in the table below :—

Districts	1935	1936	1937	1938	1939	1940
1	2	3	4	5	6	7
	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.
Cachar	15 10	13 10	14 10	12 10	10 7	10 12
Sylhet	12 7	12 3	12 12	11 11	10 7	10 4
Goalpara	13 7	12 0	11 12	11 0	10 3	9 9
Kamrup	11 15	12 3	11 4	10 14	10 3	9 13
Darrang	13 10	14 11	14 0	13 12	11 6	10 9
Nowgong	15 5	14 4	13 6	13 11	11 11	10 3
Sibsagar	11 14	11 14	11 15	12 8	10 13	9 13
Lakhimpur	11 12	11 11	11 15	11 15	10 15	10 6

From a scrutiny of the figures given in the above table it will be seen that there was a tendency for the price of rice to rise in all the districts except Cachar where there was slight fall in comparison with the last year. The Provincial birth and death-rates, were 28.21 and 17.20 respectively against 28.44 and 19.25 respectively in 1939.

CHAPTER II

VITAL STATISTICS

(Including population and Emigration and Immigration)

The following paragraphs are based on the recently completed census of 1941.

3. The consolidated census population of the province for 1941 is 10,930,388 as compared with 9,247,857 for the year 1931. The increase is 1,682,531 or 18·19 per cent. from 1931 to 1941 as compared with 1,257,611 or 15·75 from 1921 to 1931.

Year	Population	Increase from the last census in number	Increase in per cent.
1941	10,930,388	1,682,531	+18·19
1931	9,247,857	1,257,611	+15·74
1921	7,990,246	929,725	+13·17
1911	7,060,521	933,576	+15·24

The population increase from 1931 to 1941 according to sex is distributed as follows :—

Year	Male	Female
1941	5,740,746	5,189,642
1931	4,844,133	4,403,724
Increase ...	896,613 or 9·70 per cent.	785,918 or 8·49 per cent.

The population for the plain districts including North Cachar Hill subdivision is 7,959,673 and the distribution is as follows :—

Districts	1931	1941	Increase in number	Increase in per cent.
1	2	3	4	5
Cachar	570,531	641,181	70,650	+ 12·38
Sylhet	2,724,342	3,116,602	392,260	+ 14·40
Goalpara	882,748	1,014,285	131,537	+ 14·90
Kamrup	976,746	1,264,200	287,454	+ 29·43
Darrang	584,817	736,791	151,974	+ 25·99
Nowgong	562,581	710,800	148,219	+ 26·35
Sibsagar	933,326	1,074,741	141,415	+ 15·15
Lakhimpnr	724,582	894,842	170,260	+ 23·50

The lowest increase in the Cachar district and the highest is in the Kamrup district. Increase below the Provincial average figure is in Cachar, Sylhet, Goalpara and Sibsaagar districts and the other districts are above the provincial average. This unequal increase of population can be attributed mainly to fertility of land and consequent immigration.

The population of 1941 according to community is as follows :—

Classes	Total for the province
Hindus including Schedule Castes	4,540,497
Muslims	3,474,141
Christians	67,184
Buddists	8,317
Other classes	2,840,249

The population according to urban and non-urban areas is as follows:—

Districts			Town		Other than towns		
			1931	1941	Increase	1931	1941
1			2	3	4	5	6
Cachar	...	...	16,195	21,156	4,961 or +30.63%	554,336	620,025
							65,689 or +11.85%
Sylhet	...	...	45,883	63,659	17,776 or +38.75%	2,678,459	3,052,943
							374,484 or +13.98%
Goalpara	...	...	21,442	32,058	10,616 or +49.51%	861,306	982,227
							120,921 or +14.04%
Kamrup	...	...	39,028	55,334	16,306 or +41.78%	937,718	1,207,866
							270,148 or +28.81%
Darrang	...	...	11,964	13,972	2,008 or +16.78%	572,853	722,819
							149,966 or +26.18%
Nowgong	...	...	10,413	12,972	2,559 or +24.58%	552,168	697,828
							145,660 or +26.38%
Sibsagar	...	...	23,175	28,129	4,954 or +21.38%	910,151	1,046,612
							136,461 or +14.99%
Lakhimpur	...	...	27,914	36,496	8,582 or +30.74%	696,666	858,346
							161,878 or +23.21%
Total	...		196,014	264,776	68,762 or +35.08%	7,763,659	9,188,666
							1,425,007 or +18.35%

It is to be noted that this population is only for the plain districts including North Cachar Hills subdivision ; and that during the period 1931-41 new towns namely Srimangal and Nalbari have come into existence while Lumding has not been included as a town here. So the increase of population in towns will not be accurately relative, but it does reflect the increase in the number of the population under the environment of urban conditions. The mid-year estimated population for the year 1940 is 10,165,554. The census population on March 1941 is 10,930,388. The difference is 764,834 and the interval of periods is 9 months.

The population estimated for the purpose of the report is based on the method of "natural increase". If the "arithmetic progression" process be taken, and the rate of increment of population is considered from that of the 1931-1941 census period, the population at the mid-year of 1940 would have been 10,888,323.

It is therefore found that the estimated population for 1941 is less by 722,769 than the population for the same period calculated according to A. P. method.

This large discrepancy is due to the great inflow of immigrants of which the department does not have any figures.

The figure of population for this report is not taken from all parts of Assam. Excepting for the figures of vaccination for which the population of the whole province including 'State' is counted ; the other figures of vital statistics are based on the population of the plains autonomous districts only, excluding the North Cachar Hill subdivision, but including Haflong town.

The population has also been estimated on the basis of "Natural Increase" in lieu of any other reliable method to be adopted for huge immigration.

To avoid any complication, the figures are sometimes based on the last census population. But the census figures inflate the vital ratios for a year nearing another census year ; because by that time the population increases by more than a crore. So, to make the ratio as real as possible, the process of 'Natural Increase' has been adopted, failing to include the immigrants but including their births and deaths registered in this province.

For vaccination purpose, the estimated population of the whole province at the end of June 1940 is 10,165,554 ; and that for the other parts of the vital statistics is 8,655,442 at the above-mentioned time. The corresponding census figures of March 1941 are 10,930,388 and 9,417,552 respectively.

The discrepancy of figures is due to difference of periods and the lack of immigration figures.

As in the last year the birth and death rates have been calculated on the estimated population. The estimated population of the plains districts for the year 1940 was accordingly 8,655,442 (4,555,652 males and 4,099,790 females) as compared with the estimated population of 8,523,816 for the year 1939. A statement showing the growth of the population and the birth and death-rates in the districts each year since 1931 is given below:—

FOOT-NOTE.—The large increase of the census population may be attributed to the seasonal and some permanent causes other than the fertility of land.

(a) Enumeration of the census population has been made in the month of March. Generally in this province this month falls within the period of seasonal inflow of outside labourers and businessmen. This fact has been more or less verified by the clause to be included in the census report as the floating population.

(b) During the period 1931 to 1941, this province has advanced industrially at a rate more than normal. It is proved by the fact that during this time numbers of small scale industries like rice-mills match factories and the like have been established; and the expansion of large-scale industries like the oil-company, tea-gardens has been brought. Exploitation of forest-products also has imported a considerable number of population. Increase of the military population also, in this period, should not be forgotten.

(c) The increase is also partly due to a biological re-action of a weakened community to perpetuate its species in face of the terrible struggle for existence through which it is passing. This increase is also being maintained by the polygamous marriages amongst the lower classes.

A statement showing the growth of the population and the birth and death-rates in the districts each year since 1931 is given below

Districts	Estimated mid-year population	Number of births	Birth-rate per mille based on the estimated population	Number of deaths	Death-rate per mille based on the estimated population
1	2	3	4	5	6
1931					
Cachar	540,263	15,972	29.56	11,632	21.53
Sylhet	2,735,095	91,113	33.31	57,333	20.96
Goalpara	885,250	26,393	29.81	19,019	21.43
Kamrup	977,257	21,002	21.49	12,658	12.95
Darrang	585,059	15,058	25.73	11,223	19.18
Nowgong	563,066	12,135	21.55	7,821	13.89
Sibsagar	934,989	24,285	25.97	15,926	17.03
Lakhimpur	725,552	17,048	23.49	12,305	16.96
Total for the Province ...	7,946,531	223,006	28.06	148,117	18.64
1932					
Cachar	544,527	17,714	32.54	10,397	19.09
Sylhet	2,772,962	98,796	35.63	54,914	19.80
Goalpara	891,009	26,734	30.00	29,973	23.54
Kamrup	984,108	21,294	21.64	15,064	15.31
Darrang	588,912	15,578	26.45	11,647	19.78
Nowgong	566,930	12,295	21.69	8,631	15.22
Sibsagar	944,063	26,460	28.03	15,931	16.87
Lakhimpur	730,577	15,454	21.15	12,764	17.47
Total for the Province ...	8,023,088	234,319	29.21	150,321	18.74
1933					
Cachar	553,165	18,393	33.25	12,188	22.03
Sylhet	2,820,536	100,103	35.49	64,799	22.97
Goalpara	896,905	28,452	31.72	20,857	23.25
Kamrup	991,984	22,312	22.49	13,635	13.74
Darrang	593,152	16,791	28.31	11,611	19.57
Nowgong	570,812	11,119	19.48	6,799	11.91
Sibsagar	955,002	26,854	28.12	16,704	17.49
Lakhimpur	738,378	22,094	29.92	14,461	19.58
Total for the Province ...	8,119,934	246,118	30.31	161,054	19.83
1934					
Cachar	559,114	18,542	33.16	10,121	18.10
Sylhet	2,849,666	94,787	32.26	60,171	21.11
Goalpara	906,360	30,412	33.55	20,704	22.84
Kamrup	999,697	20,964	20.97	13,543	13.55
Darrang	598,971	19,452	32.48	12,525	20.91
Nowgong	575,156	10,408	18.09	6,372	11.08
Sibsagar	963,613	26,741	27.75	17,700	18.37
Lakhimpur	745,028	21,450	28.79	14,565	19.55
Total for the Province ...	8,197,605	242,756	29.61	155,701	18.99

Districts	Estimated mid-year population	Number of births	Birth-rate per mille based on the estimated population	Number of deaths	Death-rate per mille based on the estimated population
1	2	3	4	5	6

1935

Cachar	...	...	565,673	18,946	33.49	14,702	25.99
Sylhet	...	...	2,879,099	91,858	31.91	65,492	22.74
Goalpara	...	...	914,702	29,933	32.72	22,595	24.70
Kamrup	...	...	1,005,025	21,008	20.90	15,679	15.60
Darrang	...	...	605,336	18,714	30.92	13,285	21.95
Nowgong	...	...	578,818	9,633	16.64	6,865	11.86
Sibsagar	...	...	973,653	27,030	27.76	16,082	16.52
Lakhimpur	...	...	752,600	22,776	30.26	15,023	19.96
Total for the Province	...		8,274,906	239,898	28.99	169,723	20.51

1936

Cachar	...	...	572,069	19,861	34.72	11,858	20.73
Sylhet	...	...	2,911,133	96,053	32.99	59,552	20.46
Goalpara	...	...	921,926	29,014	31.47	20,286	22.00
Kamrup	...	...	1,012,768	19,055	18.82	11,319	11.18
Darrang	...	...	611,009	17,352	28.40	12,083	19.77
Nowgong	...	...	581,322	10,316	17.75	6,506	11.19
Sibsagar	...	...	984,279	25,678	26.09	17,712	17.99
Lakhimpur	...	...	759,814	22,375	29.45	16,285	21.43
Total for the Province	...		8,354,320	239,704	28.69	155,601	18.63

1937

Cachar	...	...	579,785	20,242	34.91	13,813	23.82
Sylhet	...	...	2,943,520	98,923	33.61	72,758	24.72
Goalpara	...	...	933,086	31,110	33.64	20,186	21.63
Kamrup	...	...	1,021,169	19,266	18.87	11,570	11.33
Darrang	...	...	615,456	17,896	29.08	13,439	21.84
Nowgong	...	...	586,096	11,784	20.11	7,701	13.14
Sibsagar	...	...	990,705	25,910	26.15	19,240	19.42
Lakhimpur	...	...	766,236	23,093	30.14	17,347	22.64
Total for the Province	...		8,436,053	248,224	29.42	176,054	20.87

1938

Cachar	...	...	585,410	18,315	31.29	11,565	19.76
Sylhet	...	...	2,967,732	91,056	30.68	74,865	25.23
Goalpara	...	...	943,410	30,182	31.99	23,756	25.18
Kamrup	...	...	1,028,845	22,979	22.34	15,076	14.65
Darrang	...	...	620,623	17,774	28.64	12,275	19.78
Nowgong	...	...	589,287	9,792	16.62	6,635	11.26
Sibsagar	...	...	998,741	25,971	26.00	16,429	16.45
Lakhimpur	...	...	770,744	21,111	27.39	17,142	22.24
Total for the Province	...		8,504,792	237,180	27.89	177,743	20.90

1939

Cachar	...	...	592,454	19,784	34.58	12,363	21.61
Sylhet	...	...	2,982,213	88,478	29.78	60,795	20.46
Goalpara	...	...	948,560	31,006	32.71	23,627	24.92
Kamrup	...	...	1,036,586	19,973	19.28	11,998	11.58
Darrang	...	...	626,575	18,414	29.60	12,819	20.63
Nowgong	...	...	593,051	14,004	23.65	10,088	17.04
Sibsagar	...	...	1,009,043	28,545	28.51	18,455	18.44
Lakhimpur	...	...	775,794	22,224	28.43	13,974	17.87
Total for the Province	...		8,564,276	242,428	28.44	164,119	19.25

Districts	Estimated mid-year population	Number of birth	Birth-rate per mille based on the estimated population	Number of deaths	Death-rates per mille based on estimated population
1	2	3	4	5	6

1940

Cachar ...	600,654	19,462	32.40	12,413	20.67
Sylhet ...	3,020,256	95,577	31.65	60,057	19.88
Goalpara ...	956,676	30,190	31.55	18,673	19.51
Kamrup ...	1,044,691	18,345	17.56	9,388	8.99
Darrang ...	632,540	19,238	30.41	12,229	19.33
Nowgong ...	596,598	11,852	19.87	7,330	12.29
Sibsagar ...	1,018,780	26,687	26.19	15,645	15.36
Lakhimpur ...	785,247	22,803	29.04	13,129	16.72
Total for the province ...	8,655,442	244,154	28.21	148,864	17.20

Registration continues to be carried out in the same areas of the Hill districts as before, and the result is shown separately in paragraph 12 of this report.

Births and death-rates.—The birth-rate of the province for the year 1940 was 28.21, as compared with 28.44 in the preceding year. The table below shows the corresponding rates as reported from the other provinces. The birth-rates for this province have been calculated on the estimated populations of the years concerned, and it is presumed that the rates in the other provinces have been similarly calculated.

Province	Birth-rate		
	1940	1939	1935-39
1	2	3	4
Assam ...	28.21	28.44	27.90
*Bengal ...	33.70	32.02	32.60
Bihar ...	30.8	33.3	...
Orissa ...	35.85	34.92	...
United Provinces ...	34.72	36.26	36.80
Madras ...	38.65	38.53	38.17
Burma ...	34.97	35.34	34.36
Bombay ...	42.07	43.16	41.61
Central Provinces ...	37.58	38.28	41.77
Punjab ...	40.62	40.82	39.89
North West Frontier Province ...	27.24	27.98	31.25
Sind ...	21.15	20.88	20.33

*Calculated on the basis of census population.

4. *Birth registration, General.*—The total number of births registered during the year under report was 244,154 as compared with 242,428 in the preceding year yielding a birth-rate of 28.21 per 1,000 of population against 28.44 in the previous year. The number of births registered in 1940 was higher than that recorded in 1939 by 1,726. The average birth-rate for the previous 5 years was 27.90. The highest birth-rate was recorded in the district of Cachar (32.40) followed by Sylhet (31.65), Goalpara (31.55), Darrang (30.41) and Sibsagar (29.04). These five districts returned birth-rates above and the other three districts below the provincial average (28.21). The lowest birth-rate was recorded in the Kamrup district (17.56).

The highest birth-rate of 36.09 in January was followed by December 35.68. The lowest rate (18.97) was recorded in June. During the year under review births exceeded deaths by 95,290 or 11.01 per mille of population. The number of males to every 100 females born was 108. It was 107 in 1939.

5. *Birth registration in urban areas.*—The total number of births registered in urban areas during the year 1940 was 6,901 as compared with 6,635 in 1939 and birth-rate per mille of population was 30.84 as compared with 30.06 in the preceding year. There are 27 towns, 13 of which returned rates above 30 per mille. The highest rate was recorded in the town of Hailakandi (47.49) in Cachar district, followed by Barpeta (43.17) in the Kamrup district, Dhubri (39.92) and Goalpara town (39.20) in the Goalpara district. Rates below 25 per mille were recorded from 4 towns, the lowest rate (16.56) was recorded in Nalbari in Kamrup district. The birth-rate exceeded the death-rate in all towns.

6. *Birth registration in rural areas.*—The total number of births registered in rural areas during the year under review was 237,253 or 28·14 per mille of population as compared with 235,793 and 28·40 respectively in the previous year. Considering the registration circles individually, the highest rate was recorded in the Gossaigaon circle (60·11) in the Goalpara district followed by Panery (50·45) in the Darrang district, North Lakhimpur (41·88) in the Lakhimpur district, Sunamganj (41·21) in the Sylhet district. The circles reporting low birth-rates were Sorbhog (8·19) in Kamrup, Margherita Digboi (10·42) in Lakhimpur.

The low rates are probably due to defective registration.

7. *Deaths and death-rates.*—The death-rate of the province for the year 1940 was 17·20 against 19·25 in the preceding year, and is compared below with rates of other provinces in India and Burma.

Province							Death-rate		
							1940	1939	1935-39
1							2	3	4
Assam *	...	...	...	...	...	...	17·20	19·25	19·49
Bengal	...	...	...	...	...	...	22·26	21·85	24·02
Bihar	...	...	...	...	...	...	19·1	23·00	...
Orissa	...	...	...	...	...	...	21·72	28·18	...
United Provinces	...	...	...	...	...	...	19·45	23·09	23·54
Madras	...	...	...	...	...	...	24·96	25·26	24·18
Burma	...	...	...	...	...	...	26·21	25·09	23·57
Bombay	...	...	...	...	...	...	27·91	27·55	28·34
Central Provinces	...	...	...	...	...	...	30·30	31·07	33·24
Punjab	...	...	...	...	...	...	23·70	22·11	21·10
North-West Frontier Province...	...	...	...	...	...	...	19·70	17·27	20·02
Sind	...	...	...	...	...	...	13·77	11·55	12·15

* Figures are calculated on the estimated population.

8. *Death registration—General.*—The total number of deaths registered in the Province during the year was 148,864 as compared with 164,119 in the preceding year, the death-rate per mille of population being 17·20 and 19·25 respectively. The number of deaths registered in 1940 was lower than in 1939 by 15,255. The quinquennial average was 19·49. The districts of Cachar, Sylhet, Goalpara, and Darrang returned death-rates above and the other four districts below the quinquennial average. The highest death-rate was recorded in the district of Cachar (20·67) followed by Sylhet (19·88), Goalpara (19·51) and Darrang (19·33). The lowest rate (8·99) was recorded in the Kamrup district.

The appended table shows the number of deaths reported from each district in 1940, as compared with that of 1939 :—

Districts					1940	1939	Increase or decrease
1					2	3	4
Cachar ...	...	...	...	...	12,413	12,363	+50
Sylhet ...	...	...	...	...	60,057	60,795	—738
Goalpara	...	...	...	...	18,673	23,627	—4,954
Kamrup	...	...	...	...	9,388	11,998	—2,610
Darrang	...	...	...	...	12,229	12,819	—590
Nowgong	...	...	...	...	7,330	10,088	—2,758
Sibsagar	...	...	...	...	15,645	18,455	—2,810
Lakhimpur	...	...	...	...	13,129	13,974	—845
Total	...	...	...	...	148,864	164,119	—15,255

The number of male deaths to every 100 female deaths was 111.

9. *Death registration in urban areas.*—The total number of deaths registered during the year under report in urban areas in which registration is compulsory was 3,572 as compared with 3,798 in 1939 yielding a death-rate of 15·96 against 17·21 in 1939. The quinquennial average was 17·00. The highest death-rate was recorded in Golaghat town (37·93). The increase is due to a large number of deaths under “Fevers”, “Respiratory diseases” and “All other causes”. Other high rates were recorded in Haflong (22·14), Hailakendi (20·11), Tezpur (20·66) Goalpara (19·60) Barpeta (19·48). The lowest rates were recorded in Tinsukia (7·76) and Nazira (8·45).

The number of deaths recorded under each of the main heads of mortality in towns in the years 1939 and 1940 are shown in the table below :—

Head of mortality						1940	1939	Increase or decrease in 1940
1						2	3	4
Cholera	...	...	...	...	...	36	16	+ 20
Small-pox	...	...	...	...	...	64	51	+ 13
Fevers	...	...	...	...	...	1,039	1,020	+ 19
Dysentery and Diarrhoea	...	...	...	...	...	406	485	—79
Respiratory Diseases	...	...	...	...	...	417	493	— 76
Injuries	...	...	...	...	...	106	123	—17
All other causes	...	...	...	...	...	1,504	1,610	—106
Total						3,572	3,798	—226

10. *Death registration in rural areas.*—The total number of deaths registered in 1940 in rural areas was 145,292 or 17·23 per mille of population against 160,321 and 19·30 in the previous year. The quinquennial average was 18·61.

The number of deaths under each of the main heads of mortality in the years 1939 and 1940 is compared in the table below :—

Head of mortality						1940	1939	Increase or decrease in 1940
1						2	3	4
Cholera	...	...	...	...	...	2,773	3,004	—231
Small-pox	...	...	...	...	...	1,336	2,146	—810
Fevers	...	...	...	...	...	92,638	102,872	—10,234
Dysentery and Diarrhoea	...	...	...	...	...	8,558	11,156	—2,598
Respiratory Diseases	...	...	...	...	...	4,658	5,488	—830
Injuries	...	...	...	...	...	1,989	1,770	—81
All other causes	...	...	...	...	...	33,640	33,885	—245
Total						145,292	160,321	—15,029

There was decrease in deaths under all the several heads under which deaths are recorded. The highest death rate was reported from Panery (41·66) in the Darrang district, other circle which returned high rates were Gossaingaon (39·45) in the Goalpara district, Jaintiapur (28·90) in the Sylhet district and Udalguri (28·46) in Darrang district, Barkhola (25·82) in the Cachar district. The lowest rate was reported from Hajo (6·29) Barpeta (5·27) and Sarbhog (4·64) in the Kamrup district. The cause of death “Fevers” was mainly responsible for the high death-rates in the areas mentioned above. The other large contributory causes was “All other causes.”

11. *Seasonal incidence of mortality.*—Mortality was highest (19·15) in the month of January and lowest (16·07) in March, “Cholera” “Fevers” and Dysentery and Diarrhoea were responsible for the high death-rate in January.

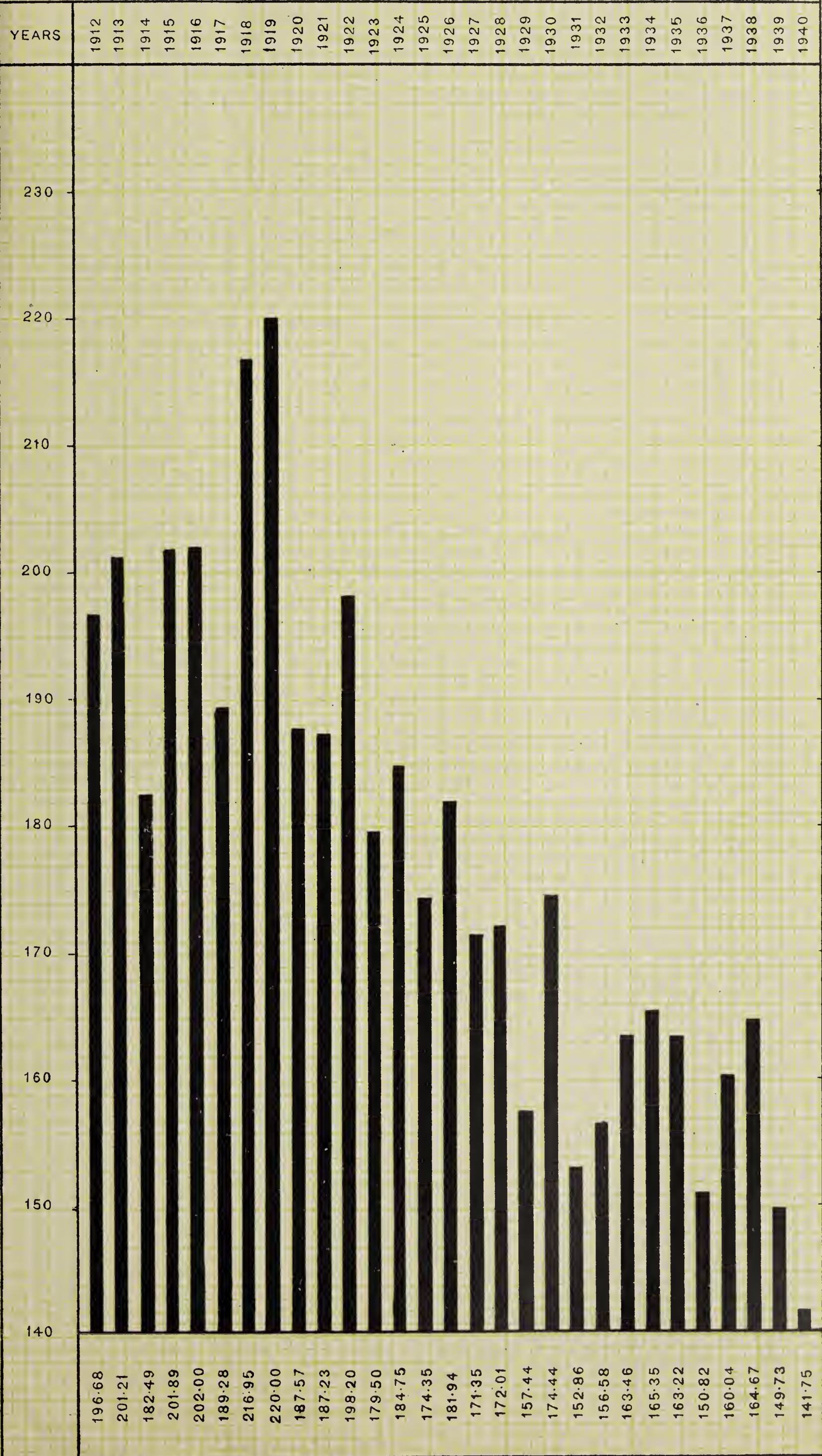
12. *Registration in hill districts.*—As in the previous years births and deaths were registered on the same limited areas in the hill districts. The population of which according to the census of 1931 was 404,535 and the estimated population for the year 1940 is 448,390.

The birth and death-rates of these areas in 1940 are compared in the table below with those of 1939 :—

Districts		Estimated population under registration	1940		1939	
			Birth-rate	Death-rate	Birth-rate	Death-rate
1		2	3	4	5	6
Garó Hills	...	205,881	27·45	19·08	26·05	18·81
Khasi and Jaintia Hills	...	69,860	28·63	17·55	23·48	16·97
Lushai Hills	...	145,286	35·78	18·91	39·65	21·38
Naga Hills	...	4,883	54·24	34·81	69·01	53·34
Sadiya Frontier Tract	...	22,480	26·25	22·33	28 14	26·58

From the above table it will be seen that the birth-rate and death-rate were higher in Garó Hills and Khasi and Jaintia Hills and lower in Lushai Hills, Naga Hills and Sadiya Frontier Tract than in 1939.

CHART I
Infant Mortality in Assam 1912-1940



Garó Hills.—The total number of births and deaths in the Garó Hills during the year under review was 5,652 and 3,928 respectively as compared with 5,327 and 3,847 respectively. The increase in the number of deaths is attributed to the increase in the number of deaths from malaria, *Kala azar* and respiratory diseases. A total of 44 persons died from cholera during the year against 12 last year and 5,632 persons were inoculated with cholera vaccine. There was 1 death from small-pox against 8 in the previous year. There were 2,015 deaths from fever against 1,817 in the previous year. Three hundred and ninety cases of yaws were treated during the year against 570 last year. In the Tura Leper Colony a total of 124 lepers were treated against 128 last year. Sixty-seven packets of quinine reinforced cinchona treatments were sold as compared with 75 in the preceding year.

Khasi and Jaintia Hills.—The number of births and deaths recorded in the Khasi and Jaintia Hills during the year under report was 2,000 and 1,226 respectively against 1,626 and 1,175 in the preceding year. Eight deaths from cholera were reported from rural areas. A total of 25,271 cases of malaria was treated in the dispensaries of the district as compared with 27,176 in the previous year. In 1940, five hundred and sixty boxes of quinine reinforced Cinchona Febrifuge tablets were sold against 605 in 1939.

The total number of births and deaths registered in Shillong during the year was 828 or 33·43 and 349 or 14·09 per mille respectively as compared with 750 or 30·71 and 348 or 14·27 respectively in the preceding year.

The table below shows the number of attacks and deaths from infectious diseases recorded by the Shillong Municipality in 1940:—

Disease	Attacks	Deaths
Tuberculosis	42	22
Enteric fever	14	5
Small-pox	3	0
Diphtheria	16	2
Leprosy	10	1
<i>Kala azar</i>	1	...
Cerebrospinal meningitis	8	5
Others	4	1
Total	98	36

Lushai Hills.—The general health of the district was fair during the year. There was no epidemic of cholera and small-pox in the district, during the year. The chief diseases in the district during the year under report was Malaria, metazoan parasites, diseases of the respiratory system, diseases of the stomach, intestine and digestive system and fevers. A total of 611 boxes of quinine were sold during the year as compared with 916 in 1939. Thirty-seven cases of yaws and 6 cases of leprosy were treated during the year against 54 and 11 respectively in the previous year. The total number of births and deaths recorded during the year was 5,199 and 2,747 respectively against 5,650 and 3,047 respectively in 1939.

Naga Hills.—The registration of births and deaths in this district is carried out in the Kohima town and the Dimapur rural circle only. The birth-rate and death-rate of this district were 54·24 and 34·81 respectively as compared with 69·01 and 53·34 respectively in 1939. Malaria was endemic more or less throughout the district, its incidence was practically in the villages on the lower range and bordering on the plains during the rains. Anti-Malaria work is confined to Dimapur and the oiling of water courses were done in Kohima by the Assam Rifles Battalion. A total of 69 packets of quinine were sold during the year as compared with 82 packets last year.

Sadiya Frontier Tract.—The total number of births and deaths registered in 1940 was 590 and 502 respectively as compared with 631 and 596 respectively in the previous year. The health of the people in this district was generally good. There was no outbreak of cholera or small-pox in the district during the year. A total of 390 persons died from fevers. Anti-malaria measures were carried out at Pasighat throughout the year. A total of 88 packets of quinine was sold during the year against 72 packets last year.

Manipur State.—Births and deaths are not recorded in this State. A total of 42 attacks and 23 deaths from cholera was reported during the year. There were 16 attacks and 12 deaths from cerebrospinal fever. Nine packets of quinine were sold as compared with three packets last year.

13. *Registration in Tea Gardens.*—The table below shows the birth and death-rates reported from Tea Estates during the year 1940 as compared with those of the preceding year:—

Districts					Birth-rate		Death-rate	
					1940	1939	1940	1939
1					2	3	4	5
Cachar	...	...	...	...	30·45	37·45	19·13	22·08
Sylhet	...	...	...	...	21·51	25·19	15·29	11·48
Goalpara	...	...	...	...	43·00	44·76	23·99	33·20
Kamrup	...	...	...	...	36·53	35·01	20·44	19·83
Darrang	...	...	...	...	38·17	37·19	24·94	23·40
Nowgong	...	...	...	...	28·68	27·60	13·94	16·94
Sibsagar	...	...	...	...	38·09	41·58	21·74	24·05
Lakhipur	...	...	...	...	35·01	36·71	18·56	22·89
Total	...	...	...	...	32·94	35·80	19·62	20·96

The total number of births and deaths on Tea Estates in 1940 was 36,076 and 21,483 respectively as compared with 36,813 and 21,551 respectively in the preceding year. The largest number of deaths was recorded under "Other causes" (9,043) and this was followed by "Fevers" (6,116), "Dysentery and Diarrhoea" (3,087), "Respiratory Diseases" (2,818) and "Injuries" 295. A total of 90 deaths from Cholera and 34 deaths from Small-pox was recorded during the year. There were 236 deaths from *Kala azar* during the year against 115 deaths last year.

14. *Registration on railways*.—The total number of births and deaths registered within railway limits during the year 1940 was 316 and 203 against 158 and 156 respectively in the preceding year. As in the previous years the largest number of births and deaths was reported from the Lakhimpur district. The highest mortality was recorded under "Other causes" (72) followed by "Respiratory Diseases" (54) during the year under report.

15. *Mortality according to sex*.—A total of 78,154 males and 70,710 females died in 1940 as compared with 85,429 and 78,690 respectively in 1939. The death-rate for males was 17.16 and that of females 17.25. The rates are lower than the corresponding rates in 1939 by 1.82 and 2.31 respectively. The female death-rate exceeded the male death-rate in all districts except Sylhet, Goalpara and Kamrup. The highest death-rate for females was returned from Cachar (21.73). The lowest death-rates for both the sexes were returned from Kamrup district, *viz.*, 9.07 for males and 8.90 for females.

16. *Mortality according to classes*.—During the year the number of deaths according to classes was as follows:—

Hindus 84,267 ; Muslims, 54,893 ; Christians 1,714 ; Buddhists 130 ; other classes 7,860.
The death-rates per mille by classes are shown in the subjoined table.

Classes					Ratio of deaths per mille, 1940	Ratio of deaths per mille, 1939	Difference
1					2	3	4
Hindus	...	...	...	...	16.03	17.94	1.91
Muslims	...	...	...	...	18.22	20.17	1.95
Christians	...	...	...	...	20.00	20.14	0.14
Buddhists	...	...	...	...	10.95	17.01	6.06
Other classes	...	...	...	...	27.23	33.44	6.21

The districts of Cachar and Sylhet recorded high rate of deaths amongst Muslims, *viz.*, 21.87 and 20.99 respectively. The lowest mortality rates both for Hindus and Muslims (9.58 and 5.76) were recorded in Kamrup district.

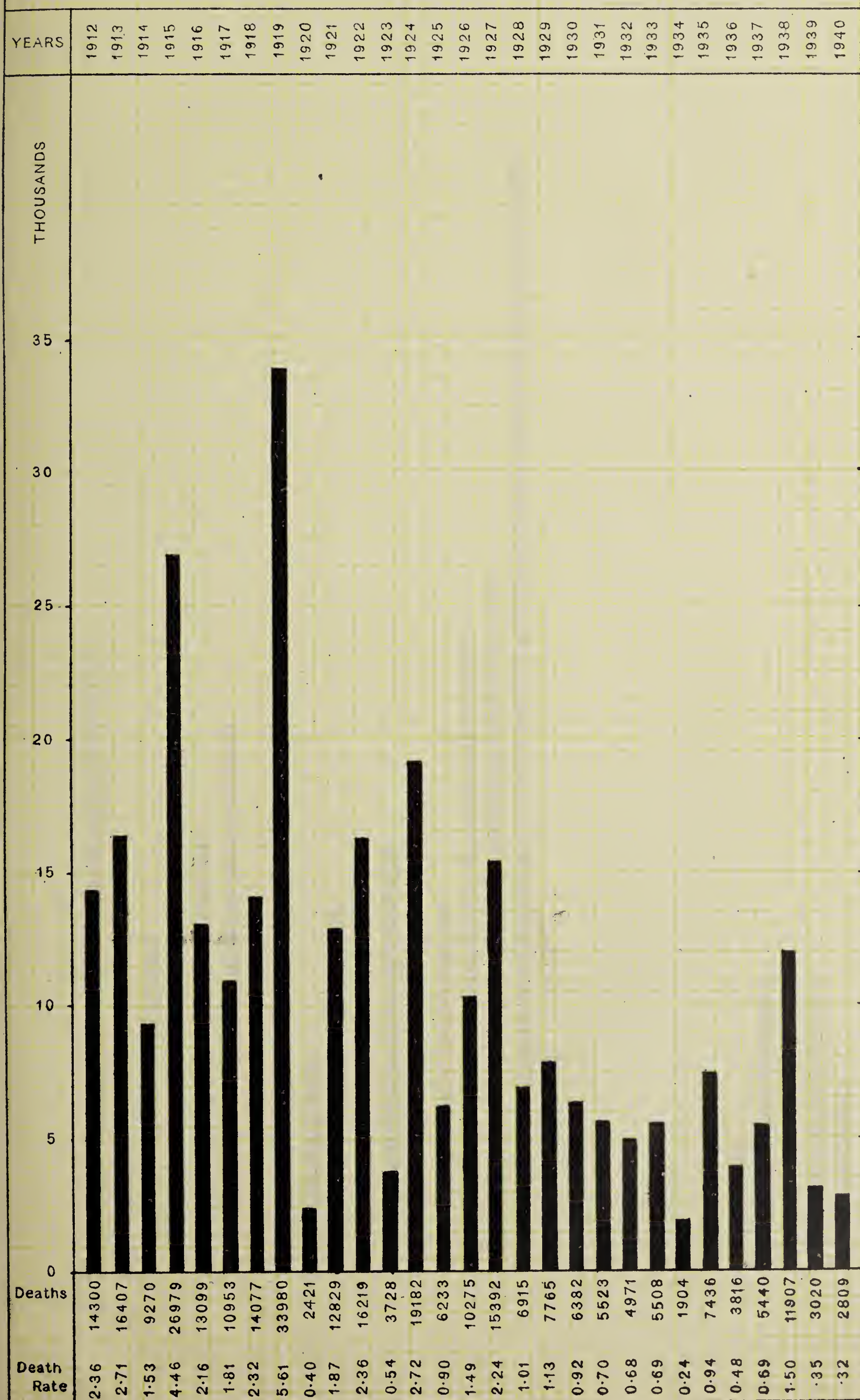
17. *Mortality according to age*.—The table below shows the rate of mortality by sexes in different age groups and the excess or defect of the female death-rates:—

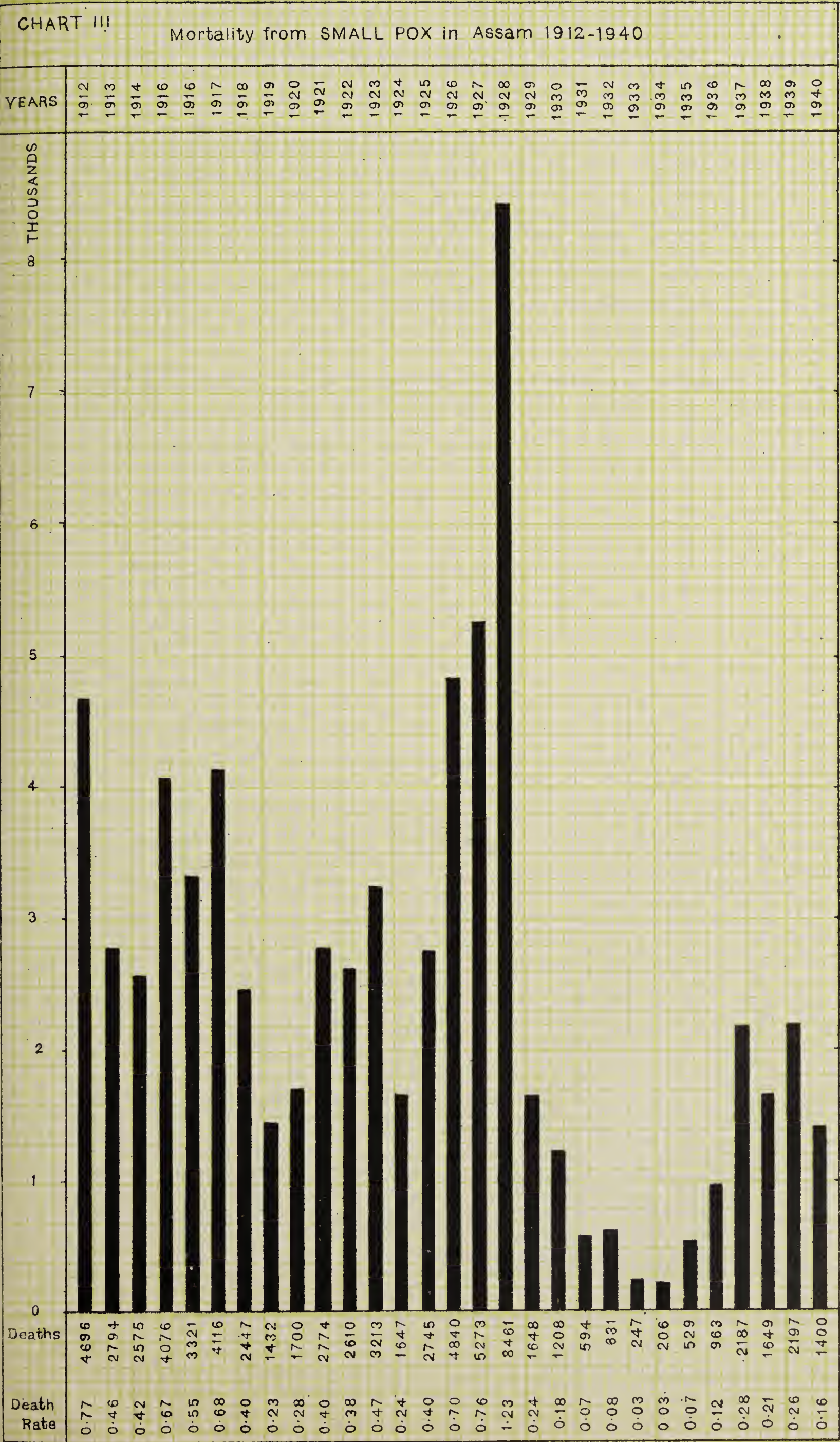
Age periods					1940		Excess or defect of female death-rate
					Male	Female	
1					2	3	4
Under one year	...	...	...	...	148.26	134.72	—13.54
1 and under 5	...	...	...	...	21.16	20.82	— 0.34
5 and under 10	...	...	...	...	8.46	7.90	— 0.56
10 and under 15	...	...	...	...	7.64	6.24	— 1.40
15 and under 20	...	...	...	...	6.06	8.87	+ 2.81
20 and under 30	...	...	...	...	7.96	12.32	+ 4.36
30 and under 40	...	...	...	...	10.33	11.21	+ 0.88
40 and under 50	...	...	...	...	14.22	12.01	— 2.21
50 and under 60	...	...	...	...	19.77	20.85	+ 1.08
60 and upwards	...	...	...	...	54.15	57.17	+ 3.02
Total	...	...	...	...	17.16	17.25	+ 0.09

It will be seen that the highest mortality was recorded amongst infants under one year of age and lowest amongst males between 15-20 and amongst females between 10-15.

CHART 11

Mortality from CHOLERA in Assam 1912-1940





The table below shows for last 10 years—the deaths and death-rates amongst infants calculated on the births in each year :—

Year	Births			Death of infants			Death-rate of infants		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10
1930	110,400	104,345	214,835	20,166	17,310	37,476	182·66	165·75	174·44
1931	115,139	107,867	223,006	18,465	15,624	34,089	160·37	144·84	152·86
1932	122,845	115,474	233,319	20,398	16,918	37,316	166·05	146·51	156·58
1933	126,882	119,236	246,118	21,903	18,328	40,231	172·62	153·71	163·46
1934	125,740	117,016	242,756	21,893	18,250	40,143	174·11	155·96	165·36
1935	123,668	116,230	239,898	21,015	18,140	39,155	169·93	156·07	163·22
1936	123,839	115,865	239,704	19,630	16,522	36,152	158·51	142·59	150·82
1937	128,233	119,991	248,224	21,350	18,377	39,727	166·49	153·15	160·04
1938	122,346	114,834	237,180	21,074	17,983	39,057	172·25	156·60	164·67
1939	125,573	116,855	242,428	19,666	16,633	36,299	156·61	142·34	149·73
1940	126,846	117,308	244,154	18,806	15,804	34,610	148·26	134·72	141·75

The infant mortality of the Province in 1940 was lower than that of any other year. A total of 34,610 infants died during the year and of these 16,799 died within one month of birth, 11,744 died between one to six months and 6,067 died between six months to twelve months.

The infant mortality of Assam for 1940 is compared in the appended table with that of other provinces in India and Burma :—

Provinces	Rates							
Assam	141·75
Bengal	159·28
Orissa	183·09
Bihar	150·6
Central Provinces	226·07
Madras	168·66
Burma	195·10
Bombay	169·36
United Provinces	135·34
Punjab	178·22
North West Frontier Province	144·17
Sind	115·72

The infant mortality rate of Assam for 1940 compares favourably with those of Orissa, Bihar, Central Provinces, Madras, Bombay, North-West Frontier Province and Burma.

As pointed out in previous reports, the heavy mortality amongst infants still continue to be due in large measure to ignorance on the part of the mother, improper feeding, and exposure of infants to insanitary surroundings. Vigorous educational measures in this respect are indicated. The number of still births recorded in 1940 was 8,731 *viz.*, Hindus (4,299), Muslims (4,127), Christians (92) Buddhists (1) other classes (212) out of 8,731 still births 4,816 males and 3,915 females.

The percentage of still births to live births was 3·58 in the year under report as compared with 3·67 in the previous year.

A chart showing the infant mortality rate in Assam from 1913 to 1940 is attached (*see* chart No.1).

18. *Registration in compulsory areas.*—The defects in the registration of vital occurrences during the year under report in compulsory urban areas, as ascertained by the vaccination inspecting staff, are shown in the table below:—

Municipalities	Unregistered vital occurrences during the year 1940		Recorded vital occurrences		Percentage of omissions	
	Births	Deaths	Births	Deaths	Births	Deaths
1	2	3	4	5	6	7
Silchar ...	...	...	368	207	...	...
Hailakandi ...	6	...	111	47	5.41	...
Haflong ...	...	...	40	26	...	...
Sylhet ...	4	2	761	371	5.53	5.54
Maulvibazar ...	3	1	119	46	2.52	2.17
Karimganj ...	...	...	148	98	...	...
Habiganj ...	...	...	246	152	...	...
Sunamganj ...	...	...	214	100	...	...
Srimangal ...	...	...	48	29	...	...
Dhubri ...	53	7	432	175	12.27	4.00
Goalpara ...	19	2	284	142	6.69	1.41
Gauripur ...	13	5	200	108	6.50	4.63
Gauhati ...	26	...	663	275	3.92	...
Barpeta ...	1	...	769	347	1.13	...
Polashbari... ..	6	1	129	43	4.65	2.33
Nalbari ...	54	24	56	30	96.43	80.00
Tezpur ...	4	3	327	215	1.22	1.39
Mangaldai ...	1	...	61	24	1.64	...
Nowgong ...	19	3	411	189	4.62	1.59
Jorhat ...	8	4	276	170	2.90	2.35
Sibsagar ...	6	8	169	88	3.55	9.09
Golaghat ...	6	...	131	187	4.58	...
Nazira ...	4	2	100	33	4.00	6.06
Dibrugarh ...	8	...	561	372	1.43	...
North Lakhimpur ...	...	...	68	35	...	...
Doom Dooma ...	18	2	61	18	29.51	11.11
Tinsukia ...	8	1	148	45	5.41	2.22
Shillong ...	16	12	828	349	1.93	3.44

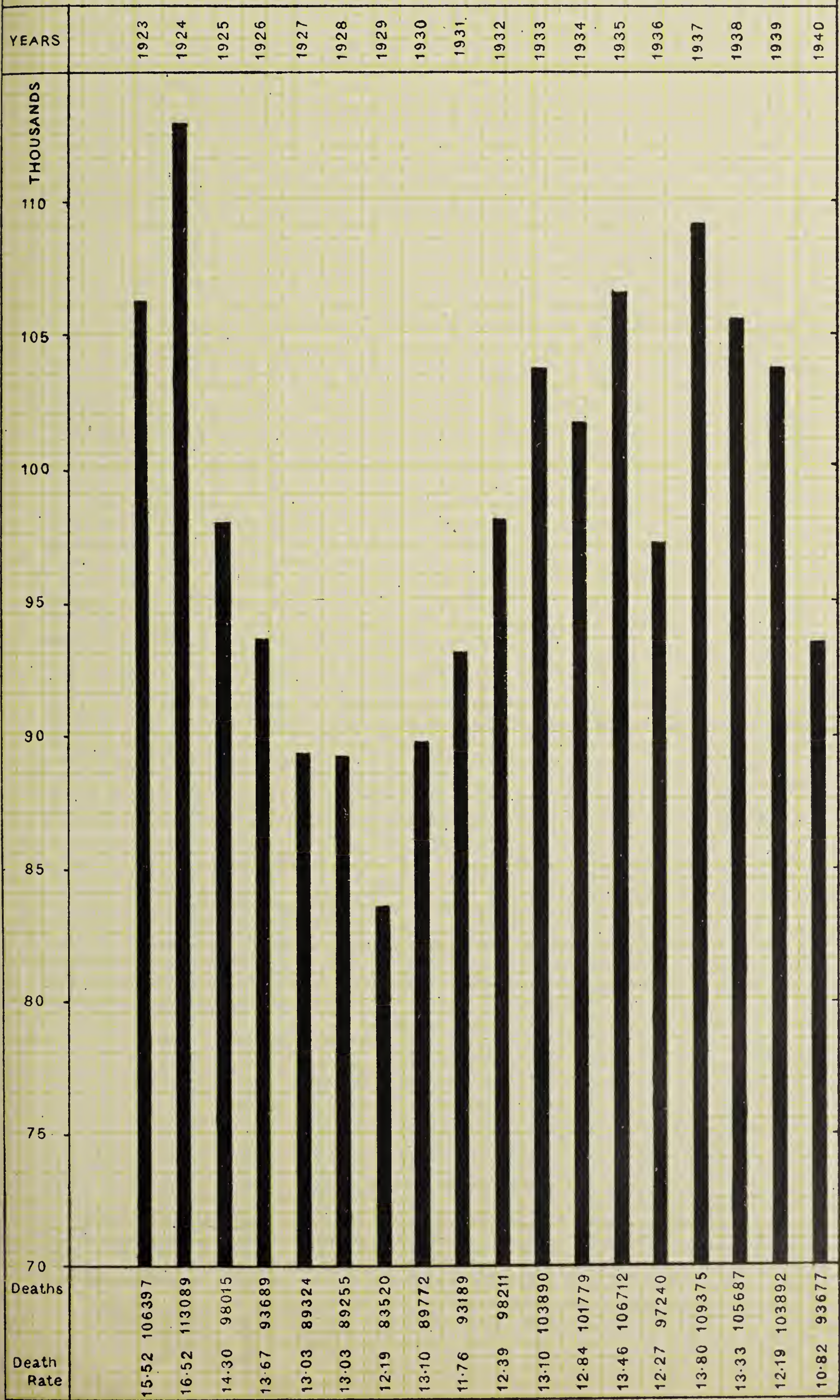
During the year 1940, 174 persons were prosecuted in the municipalities where registration is compulsory for failing to report vital occurrences and 122 were convicted. The fines imposed amounted to Rs.90-8. No omissions were detected in the towns of Silchar, Haflong, Karimganj, Habiganj, Sunamganj, Srimangal and North Lakhimpur.

19. *Inspection of village registers of vital statistics.*—The vaccination inspecting staff verified the record of 50,498 births and 28,774 deaths as compared with 43,160 and 26,676 respectively in the previous year. The percentage of omissions detected was 2.51 in respect of births and 1.32 in respect of deaths as compared with 3.56 and 2.36 respectively in 1939. As in the previous years, the district of Sylhet stood first with 23,532 entries tested, followed by Darrang with 12,142 and Nowgong with 11,581. Goalpara stood last with 4,733 entries tested during the year. Out of a total of 244,154 births and 148,864 deaths only 50,498 and 28,774 respectively were verified, i.e., percentages of 20.68 and 19.33 respectively. More extensive verification of vital statistics is necessary.

20. *General accuracy of vital statistics and improvement made during the year.*—During the year under report there was no change in the agencies engaged in the collection of vital statistics either in urban or rural areas. As usual, weekly epidemic reports and monthly returns of vital statistics were published in the *official Gazette* and in certain papers for the information of the general public. A large number of persons were prosecuted for not reporting the occurrences of epidemic diseases in time. I am not satisfied with the methods of checking of vital statistics but nothing radical can be done until a better agency is available. During the next year best checking and recording will be carried out in Hojai, Golaghat subdivision and the Cachar district and there will reveal defects in registration and the method of check and lead to the adoption of suitable measures of correction.

CHART IV

Mortality from FEVERS in Assam 1923-1940



21. *Emigration and Immigration.*—The statement below shows the number of labourers entered in Assam during 1940 by different routes :—

Month								Total number of immigrants entering Assam during 1940
January	...	...	...	...	...	...	...	6,516
February	...	...	...	...	...	...	...	9,245
March	...	...	...	...	...	...	...	5,873
April	...	...	...	...	...	...	...	3,583
May	...	...	...	...	...	...	...	1,429
June	...	...	...	...	...	...	...	528
July	...	...	...	...	...	...	...	131
August	...	...	...	...	...	...	...	34
September	...	...	...	...	...	...	...	36
October	...	...	...	...	...	...	...	106
November	...	...	...	...	...	...	...	182
December	...	...	...	...	...	...	...	929
Total	...	...	...	...	...	...	...	28,592

There were 126 cases among the immigrants of whom 8 died.

The statement below shows the number of sick labourers treated month by month in the Emigration Hospital at Gauhati during the year 1940 :—

Names of diseases	January	February	March	April	May	June	July	August	September	October	November	December	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Malaria	3	4	15	...	...	...	...	...	...	...	...	...	22
Conjunctivitis	3	1	2	10	3	2	4	...	...	...	...	...	25
Broncho-Pneumonia	...	2	...	...	...	...	...	...	...	...	1	...	3
Pneumonia	...	1	...	1	...	...	...	...	...	...	1	...	3
Influenza	...	7	23	3	1	...	...	...	...	...	...	1	35
Diarrhœa	...	1	4	2	...	1	2	...	...	1	...	1	12
Dysentery	1	1	...	...	1	...	...	...	...	...	3
Small-pox	2	1	...	...	...	...	...	...	...	...	3
Chicken-pox	1	...	1	...	...	...	...	...	...	...	2
Ulcer	1	...	...	...	...	...	...	...	...	...	1
Cholera	2	2	1	...	...	...	...	...	...	5
Lichen	1	...	...	...	...	...	...	...	...	1
Bronchitis	1	...	...	...	...	1
General Anasarka	1	1
Total	6	16	49	21	7	4	7	1	...	1	2	3	117

22. *Railway Labour Camps.*—No new railway construction was undertaken in Assam during the year under report. There were three labour camps *viz.*, Dittockcherra Ballast and Boulder siding camps in the Cachar district and a camp at Behubar quarry in Sibsagar district. The population of these camps varied from 372 to 1,083. Kutcha huts were provided and their surroundings were kept neat and clean. Malaria was prevalent in the Dittockcherra camp. General health of the labourers was not very satisfactory. A Sub-Assistant Surgeon and a compounder were employed for treatment and prevention of disease.

CHAPTER III

THE STATE OF PUBLIC HEALTH AND THE HISTORY OF CHIEF DISEASES

23. *The State of Public Health in the Province.*—The state of Public Health in the Province was fairly satisfactory during the year. Deaths under all heads of mortality with the exception of "Respiratory diseases" and "All other causes" were less than that in 1939.

During the year 148,864 deaths were recorded, of which 2,809 were from cholera, 1,400 from small-pox, 93,677 from fevers, 8,964 from dysentery and diarrhœa, 5,075 from respiratory diseases, 1,795 from injuries and 35,144 from all other causes. The table below shows the death-rates per mille from the chief causes of deaths during 1940, as compared with the decennium ending 1939 :—

Diseases	1940			1930-39		
	Urban	Rural	Combined	Urban	Rural	Combined
1	2	3	4	5	6	7
Cholera	0.16	0.33	0.32	0.26	0.66	0.65
Small-pox	0.28	0.16	0.16	0.18	0.12	0.12
Plague	...	...	...	...	...	...
Fevers	4.64	10.99	10.82	4.50	11.86	11.67
Dysentery and Diarrhœa	1.81	1.01	1.04	1.98	1.17	1.19
Respiratory Diseases	1.16	0.55	0.59	2.11	0.68	0.72
Injuries	0.48	0.20	0.21	0.52	0.22	0.23
All other causes	6.72	3.99	4.06	6.42	3.91	3.97
Total	15.96	17.23	17.20	15.89	18.61	18.45

24. *Cholera*.—The number of deaths from cholera reported during the year was 2,809 against 3,020 in the previous year—a decrease of nearly 7 per cent. The death-rate per 1,000 of the population was 0·32 as compared with 0·35 in the preceding year. The decennial average was 0·65 as shown in the table below :—

Districts					Death-rate per mille	
					1940	1930-39
Cachar	...	...	...	...	0·74	0·49
Sylhet	...	...	...	...	0·65	0·08
Goalpara	...	...	...	...	0·01	0·63
Kamrup	...	...	...	...	0·15	0·91
Darrang	...	...	...	...	0·02	0·40
Nowgong	...	...	...	...	0·35	0·08
Sibsagar	...	...	...	...	0·003	0·12
Lakhimpur	...	...	...	...	0·02	0·06
Total					0·32	0·65

During the year under report there was no serious epidemic of cholera in any district. The largest number of deaths (566) occurred in December and the lowest (67) in March. The highest death-rate (0·74) from this disease was reported from the Cachar district followed by Sylhet district (0·65). The highest number of deaths in towns (10) was reported from Habiganj followed by Silchar and Maulvibazar 7 each. Deaths from cholera were reported from 91 out of 149 registration circles and 1,227 out of 28,333 villages. Deaths from cholera were reported from 10 towns. The rural circle of Barkhola in the Cachar district reported the highest death-rate (1·72). The other circles reporting high death-rates were Kanaighat (1·64), in Sylhet district and Udarband (1·61), in the Cachar district.

The intensity of the infection was low in most parts of the province even in the districts of the Surma Valley. These districts with Nowgong in the Assam Valley, contributed nearly 93 per cent. of the total deaths from Cholera reported during the year, and nearly 70 per cent. occurred in Sylhet district. Cholera prevailed throughout the year in all parts of Sylhet district and there were the usual exacerbations in the pre-monsoon and post-monsoon periods. In Cachar district there was more cholera in 1940 than in the previous year. This was due to an outbreak in November among immigrant boatmen who after acquiring the infection in an epidemic area in the district, spread the disease along the river villages in their flight back to their homes. To prevent a recurrence of such a mode of spread the feasibility of regulating boat traffic on the rivers and of inoculating immigrant boatmen is being considered. The relative freedom of Nowgong district from severe outbreaks of cholera, was broken by a sharp localised epidemic in December. This outbreak was wholly due to infection imported by seasonal immigrant agricultural labourers from Bengal. The spread of infection was strictly confined to the areas visited by these labourers and it was checked by intensive inoculation and other measures in the areas which were visited or likely to be visited by the immigrants. The outbreak lasted for about six weeks, but at no time did it show signs of flaring up out of control. There were in this outbreak 316 attacks and 152 deaths, and most of them occurred in the first three weeks. The epidemic would have been checked much earlier than it was, had the early cases been reported promptly. There was however a delay of about 2 weeks in the first report. It took about two weeks to overtake this lead after which the epidemic subsided rapidly, on the institution of preventive measures, mainly inoculation, which were carried out in the infected areas and in areas to which infection was likely to spread.

Intensive preventive inoculation is being carried out since 1938, with the intention of protecting a substantial proportion (80 per cent.) of the persons in infected and threatened villages.

The tables below show the amounts of cholera vaccine issued and the number of persons inoculated during the past decade :—

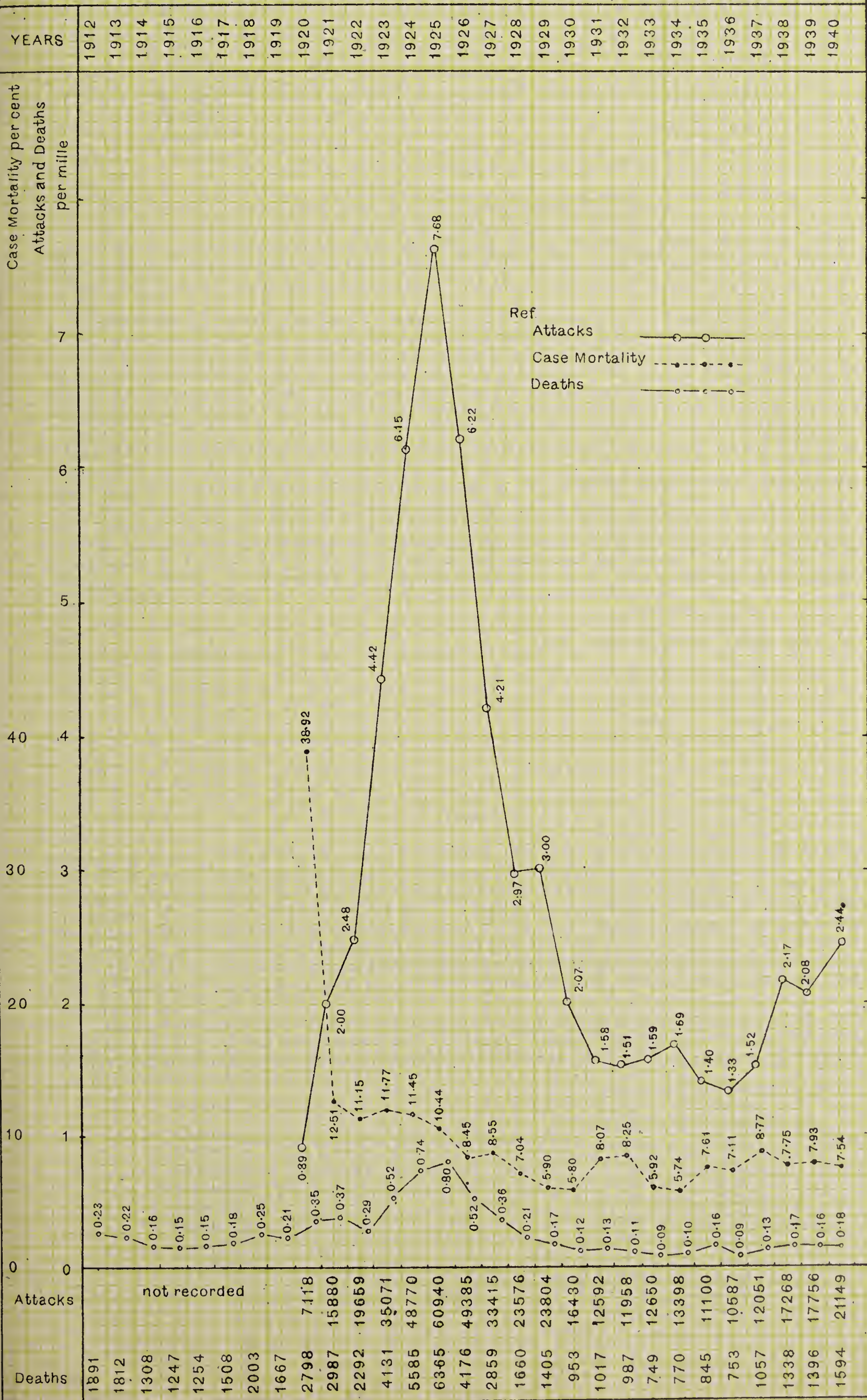
Year					c.cs.	Number inoculated
1930	...	...	...	...	220,532	145,498
1931	...	...	...	...	170,820	20,466
1932	...	...	...	...	169,317	108,052
1933	...	...	...	...	451,884	413,282
1934	...	...	...	...	171,117	Not available.
1935	...	...	...	...	475,955	333,534
1936	...	...	...	...	368,898	167,583
1937	...	...	...	...	425,443	324,194
1938	...	...	...	...	986,568	972,696
1939	...	...	...	...	240,476	113,727
1940	...	...	...	...	475,654c.c.	335,559

During the year under review 273,944 doses (of 2 c.c. each) of bacteriophage were issued. A chart showing the provincial mortality from cholera from 1913-1940 is attached (*See Chart No. II*).

The number of inoculation carried out in 1940 was 335,559, as shown by the weekly epidemic returns. In 1939 it was 106,208, it would be premature to say that the low mortality from cholera in the province since then was due to the protection, because there are discrepancies between the figures of anti-cholera vaccine issued and the numbers inoculated and discrepancies between the number inoculated as reported in the weekly epidemic returns and the annual reports of the Civil Surgeons. This problem will be investigated during the coming year, when the statistician sanctioned by Government will be appointed and it will be possible to devote more attention to these matters.

CHART V

KALA AZAR in Assam 1912-1940



25. *Cholera in Tea Estates*.—In 1940, a total of 90 deaths from cholera was reported from tea estates against 67 in the previous year. The corresponding ratios per mille being 0·08 and 0·07 respectively. The largest number of deaths was reported from Sylhet district (52) followed by Cachar (31).

26. *Small-pox*.—During the year 1940, a total of 1,400 deaths from small-pox was reported against 2,197 in the preceding year. The death-rate was 0·16 per mille as compared with 0·26 in 1939 and 0·12 the decennial average as noted below :—

Districts					Death-rate per mille	
					1940	1930-39
Cachar	...	...	...	...	0·002	0·02
Sylhet	...	...	...	...	0·41	0·19
Goalpara	...	...	...	...	0·01	0·12
Kamrup	...	...	...	...	0·09	0·15
Darrang	...	...	...	...	0·03	0·06
Nowgong	...	...	...	...	0·04	0·11
Sibsagar	...	...	...	...	...	0·03
Lakhimpur	...	...	...	...	0·01	0·05
Total					0·16	0·12

During the year under review small-pox was reported from 465 villages.

27. *High rate of mortality from small-pox in individual towns and rural areas*.—Deaths from small-pox were reported from Sylhet (2·18), Sunamganj (0·81), Gauhati (0·16), Goalpara (0·14), Silchar (0·07). Among rural circles Sulla in the Sylhet district reported the highest death-rate (4·31) followed by Fenchuganj (3·41), Sylhet (1·46), Derai (1·19) and Golapganj (1·10) in Sylhet district.

There are no special hospitals in Assam for the isolation and treatment of small-pox cases. Particulars of cases treated are shown in the imperial statement VI of the vaccination report.

In contrast with what occurred in 1939, when small-pox was the only disease which showed a larger number of deaths than in the previous year, the number of deaths from small-pox in 1940 was lower than in 1939. There were 1,403 deaths in 1940 against 2,197 in 1939. It would appear from the figures of the past five years that small-pox remains at a high level, that from 75 per cent. to 85 per cent. of the death occur in Sylhet district, and that whereas outbreaks die down quickly in other districts, in Sylhet the decline is very slow. At no time of the year was the district free. Sylhet therefore appears to be an area where small-pox is endemic, presupposing the existence of large numbers of unprotected persons in the district. The Brahmaputra Valley continues to be more or less free from small-pox except for a few localised outbreaks.

28. *Plague*.—No case of plague was reported from any district during the year under review.

29. *Fevers*.—The total number of deaths reported under the head "Fevers" during the year 1940 was 93,677 against 103,892 in the preceding year, showing a decrease of 10,215. The death-rate per mille was 10·82 against 12·19 in 1939 and 11·67 during the last decennium as shown in the appended table :—

Districts					Death-rate per mille	
					1940	1930-39
Cachar	...	...	...	...	9·96	10·25
Sylhet	...	...	...	...	11·05	11·57
Goalpara	...	...	...	...	18·42	20·22
Kamrup	...	...	...	...	6·96	9·33
Darrang	...	...	...	...	12·08	12·52
Nowgong	...	...	...	...	9·39	10·02
Sibsagar	...	...	...	...	8·69	9·39
Lakhimpur	...	...	...	...	9·32	9·35
Total					10·82	11·67

Fevers accounted for 62·93 per cent. of the total provincial mortality against 63·30 in the preceding year. These figures include deaths from malaria, *kala azar* and also from various diseases which have fever as their predominant symptom. It is not possible to determine what percentage of deaths under this head is due to malaria. The largest number of deaths was recorded in May (8,504) and the smallest in March (6,904). The highest mortality rate from fevers was recorded in the district of Goalpara (18·42) and lowest (6·96) in Kamrup. As in previous years Quinine and Cinchona Febrifuge were distributed free to indigent malaria patients throughout the province. A Chart showing the provincial mortality from "Fevers" from 1926 to 1940 is attached (See Chart No. IV).

30. *Dysentery and Diarrhoea*.—A total of 8,964 deaths were registered from dysentery and diarrhoea during the year as compared with 11,641 in the preceding year. The death-rate per mille of population was 1·04 as compared with 1·37 in 1939 and 1·19 during the last decennium as shown in the table below :—

Districts					Death-rate per mille	
					1940	1930-39
Cachar	...	...	...	...	1·92	1·80
Sylhet	...	...	...	...	0·99	1·05
Goalpara	...	...	...	...	0·15	0·23
Kamrup	...	...	...	...	0·31	0·46
Darrang	...	...	...	...	1·49	1·60
Nowgong	...	...	...	...	0·73	0·65
Sibsagar	...	...	...	...	1·61	2·15
Lakhimpur	...	...	...	...	1·69	2·25
Total					1·04	1·19

The highest number of deaths was recorded in May (931) and the lowest (580) in September. The highest mortality rate was reported from Cachar (1.92) followed by Lakhimpur (1.69). The lowest rate was returned from Goalpara (0.15).

31. *Respiratory Diseases*.—The total mortality from Respiratory diseases registered during the year was 5,075 against 5,981 in 1939, yielding death-rate of 0.59 and 0.70 respectively. The quinquennial average was 0.76. The highest mortality was recorded in Cachar district (1.45) followed by Lakhimpur (1.31). The lowest rate was returned from the Kamrup district (0.18).

32. *Influenza*.—The disease occurred in sporadic form during the year. The mortality from influenza is included under "Fever". The total number of deaths from this disease during the year under report was 676 as compared with 590 in 1939. The death-rate per mille of population was 0.08 in 1940 and 0.07 in 1939.

33. *Injuries and Other Causes*.—During the year under report 1,795 deaths from "Injuries" and 35,144 deaths from "Other causes" were registered as compared with 1,893 and 35,495 respectively in 1939. The death-rates per mille of population were 0.21 and 4.06 respectively in 1940 against 0.22 and 4.16 in the preceding year.

Cerebro-spinal fever.—During the year under review there were 15 deaths from cerebro-spinal fever, viz., 12 in Manipur State and 3 in Khasi and Jaintia Hills against 23 in the previous year.

Typhoid Fever.—There were 60 deaths from Typhoid Fever reported from 12 towns in 1940 viz., Silchar 6, Sylhet 7, Karimganj 1, Habiganj 2, Dhubri 5, Gauhati 4, Barpeta 12, Tezpur 4, Nowgong 5, Jorhat 1, Dibrugarh 8, and Shillong 5.

34. *Yaws*.—A total of 3,168 cases of yaws was treated in 1940 as compared with 3,428 in the preceding year. In Nowgong one new centre was opened during the year 1940. Survey was carried out along with Kala-azar, Leprosy, etc. Serological tests of blood sera of suspected yaws cases of the Goalpara district were carried out in the laboratory attached to the Dhubri Hospital. In Kamrup district four Public Health Dispensaries, three Local Board dispensaries and six out-centres were engaged in the treatment of yaws cases during the year.

35. *Minor eye complaints*.—During the year 1940, a total of 6,562 cases of minor eye complaints were treated by the Public Health Department Dispensaries as compared with 18,264 in the previous year. In the Dishpur area where anti-malaria work was carried out by means of spray-killing adults mosquitos, an unexpected result of this work was the complete absence of epidemic ophthalmia—the minor eye complaint that the Department treats—in the village areas so treated, where before it was very prevalent. This is attributed to the destruction along with the mosquitoes, of the *Siphonella Siphunculata*—the eye-fly—that is the cause of the spread of this troublesome eye infection. This unexpected result has led to the consideration of whether such spraying could be made a practical procedure for the prevention of such eye infection gradually.

36. *Naga-sore*.—No cases were treated during the year under report.

37. *Kala azar*.—The tables below show the number of deaths and cases of *kala azar* treated from 1930 to 1940 :—

Table showing deaths from Kala-azar from 1930 to 1940

Districts	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
1	2	3	4	5	6	7	8	9	10	11	12
Cachar ...	2	4	4	2	6	7	2	4	5	8	5
Sylhet ...	74	246	296	146	227	260	173	207	268	152	115
Goalpara ...	112	121	122	92	61	100	84	135	106	205	174
Kamrup ...	102	160	152	129	151	176	61	77	104	58	6
Darrang ...	185	222	155	167	136	91	155	256	256	181	221
Nowgong ...	132	129	132	110	78	52	121	196	101	170	161
Sibsagar ...	58	71	78	64	84	101	99	126	447	553	773
Lakhimpur ...	2	...	2	4	...	...	...	...	...	1	3
Khasi and Jaintia Hills.	...	...	...	...	4	...	10	5	5	12	...
Naga Hills ...	1	...	1	1	...	...	...	...	...	9	3
Lushai Hills ...	...	...	1	...	...	...	...	...	...	...	...
Garro Hills ...	84	64	43	34	23	58	47	51	46	47	70
Sadiya Frontier Tract.	...	...	1	...	...	...	1	...	...	...	...
Manipur State ...	1	...	...	...	...	...	...	...	...	...	...
Total ...	953	1,017	987	749	770	845	753	1,057	1,338	1,396	1,594

Table showing cases of Kala-azar treated from 1930 to 1940

Districts	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
1	2	3	4	5	6	7	8	9	10	11	12
Cachar ..	376	370	391	472	529	478	574	445	716	669	776
Sylhet ..	6,726	5,512	4,719	4,210	4,612	3,869	3,645	3,672	4,622	4,029	3,386
Goalpara ..	1,439	992	1,089	1,159	1,107	1,245	1,276	2,046	2,541	2,989	3,194
Kamrup ..	1,814	1,690	2,061	2,223	2,197	1,465	1,309	918	1,189	1,138	1,721
Darrang ..	1,106	942	665	757	876	738	636	514	989	861	1,491
Nowgong ..	1,440	1,057	1,075	1,663	1,726	1,651	1,471	2,317	3,265	3,875	5,129
Sibsagar ..	1,495	1,095	1,269	1,251	1,372	938	864	1,396	3,050	3,315	4,070
Lakhimpur ..	23	3	12	13	18	12	6	2	13	15	15
Khasi & Jaintia Hills.	..	..	..	1	5	..	..	..	..	..	..
Naga Hills ..	21	5	16	12	14	7	5	15	39	47	16
Lushai Hills..	..	4	2	1	..	..	..	..	..	..	..
Garo Hills ..	1,905	882	605	850	927	690	793	717	824	808	1,346
Sadiya Frontier Tract.	2	2	1	2	1	..	..	2	..	..	..
Manipur State	83	38	53	36	14	7	8	7	20	10	3
Total ..	16,430	12,592	11,958	12,650	13,398	11,100	10,587	12,051	17,268	17,756	21,149

The number of deaths from *Kala azar* was greater than that of the preceding year by 198. The number of patients treated was larger by 3,393. The increase in death is shared by the districts of Kamrup, Darrang, Sibsaagar, Lakhimpur and Garo Hills and the increase of cases treated is shared by Cachar, Goalpara, Kamrup, Darrang, Nowgong, Sibsaagar and Garo Hills. The method of diagnosis and treatment of *Kala Azar* was the same as in the previous year.

In Cachar district 459 villages were surveyed by the Epidemic Unit staff and the Sub-Assistant Surgeons in charge of hospitals and dispensaries and 432 suspected cases were discovered of which 119 were found to be positive. All the positive cases were brought under treatment.

In Sylhet district besides the special surveys done by the Sub-Assistant Surgeons on survey duty, 5,235 village visits were made during the year under report by Sub Assistant Surgeons in charge of Public Health Department dispensaries. Medical Officers in charge of Local Board dispensaries and 1,312 *Kala azar* cases were detected. Most of the Public Health Department dispensaries are located in unhealthy areas where communications are very poor. In spite of these difficulties the progress recorded in the campaign against *Kala azar* was generally good. During the year two public health dispensaries viz., Dharampasa and Pathoria were closed in the Sunamganj subdivision and one Public Health dispensary was opened at Bongaon in the South Sylhet subdivision.

In the Goalpara district *Kala azar* surveys were carried out as in the previous years. In addition to the regular staff the Epidemic unit staff were also utilized for the Survey of villages. A Survey recently undertaken in Choibari area which is beyond the jurisdiction of the existing dispensaries discovered 148 *Kala azar* cases. The question of opening a fully equipped Public Health Department Dispensary in this area is under the consideration of Government.

In Kamrup a special survey was made of Beltola, Panbari, Chayani, Mirzapur, Dokhin Rani, Ramsha Rani and Choygaon areas by the Sub-Assistant Surgeons of the Public Health Department especially deputed for the purpose. Other Sub-Assistant Surgeons and Local Board Doctors in charge of dispensaries carried out regular survey work in their respective jurisdiction. The Public Health Department Dispensary at Hahim was closed and a dispensary at Doulasal was opened during the year under report.

In Darrang district *Kala azar* cases were treated in the Public Health Department dispensaries of Dumnichoki, Khoirabari, Tangla and Bhakatpara and the Local Board dispensaries at Balipara Dhekiajuli, Tezpur, Sipajhar, Sarabari, Mangaldai, Kalaigaon, Bengbari and Jaljuli. The increase in admission of *Kala azar* cases is due to intensive surveys. Kalaigaon and Silpata Mauzas were thoroughly surveyed by Sub-Assistant Surgeons on *Kala azar* survey duty at Tezpur. The Sub-Assistant Surgeons on Epidemic Unit duty Tezpur and Mangaldai Surveyed Tezpur and Mangaldai areas within five miles radius in additions to their other duties.

In Nowgong district the number of *Kala azar* patients has increased. The increase is due to periodical recrudescence of the disease. *Kala azar* cases were treated in 40 dispensaries and hospitals (15 Local Board, 11 Public Health Department, 1 Jail, 1 Police hospital, 1 Railway and 11 Tea Estates) with 16 out-centres. A new Public Health Department Dispensary was opened at Kurungjeng during the year under review.

In the Sibsagar district incidence of *Kala azar* was higher than the previous year. This was due to extensive survey work undertaken in the district. An indoor *Kala azar* hospital with 50 beds was constructed during the year at Golaghat for the treatment of serious bed-ridden and complicated cases. Two new Public Health Department Dispensaries at Cinnatoly and Panikora were also opened during the year under report.

Dr. R. O. A. Smith, the officer in charge of *Kala azar* Enquiry under the Indian Research Fund Association, visited Golaghat with a view to plan a programme of research work in Assam on the transmission of *Kala azar*. He found that area would not be suitable because the number of cases of *Kala azar* showed a rapid decline and there would not be enough cases for his observations. He found also that the serious and "resistant" cases occurred chiefly among the Chhutias, who also suffered from a considerable amount of night blindness. Dr. Smith attributed the severity of the infection in these people to their very defective diet and this is confirmed by the existence of night-blindness. The Assistant Surgeon Public Health Department who had made many surveys in the area, also remarked on the prevalence of night blindness in the area. The intensive surveys that have been carried out have shown that the reports of the existence of a special or peculiar variety of *Kala azar* in the area of the prevalence of resistant cases, and of the ineffectiveness of the treatment of urea-stibamine, were unfounded. It was found that many deaths from other causes, such as Tuberculosis and Fever were recorded as deaths from *Kala azar* even in cases who had been under treatment and had been cured months or years before. There is no reason to think that *Kala azar* is not susceptible to relapse like so many other diseases. In many cases also it was found that while they had received adequate and full treatment for *Kala azar* other complications persisted and on this account the cases were held to be resistant. The work that the department had done in Golaghat has received full recognition and appreciation by the people in the subdivision.

In Garo Hills district the number of *Kala azar* cases has increased. An extensive survey was carried out by the Sub-Assistant Surgeons in charge of dispensaries and also by two Sub-Assistant Surgeons on survey duty.

Intensive Surveys in the past two or three years in many places have revealed many cases of *Kala azar* and to this is to be attributed in great part the rise in *Kala azar* just noted. But apart from this there has been a consistent rise in *Kala azar* in the districts of Goalpara, Nowgong and Sibsagar, over several years, thus pointing to the need to intensify the campaign in those districts. This may be done by increasing the staff, by still further developing existing work, or by adopting new measures or by all of these.

The staff has undergone successive increases in the past few years, but still more staff is required, as there are still too many centres where the doctors are very heavily worked. Centres with over 60 to 100 cases attending for injection are not uncommon. It is impossible to expect a doctor, working as a rule in very unfavourable conditions, to deal with these large numbers and then to survey a group of villages or to make detailed enquiries about absentees or new cases. These overworked centres should be divided and new centres and new redistribution of centres carried out, so that a doctor would have sometime to think about his work and its progress. Further all staff should be on a permanent basis, so that there will be no inducement to be always looking to other departments and work for better prospects. Present work may be developed still further in many places, if more doctors are provided and if the reorganisation of the department is brought about as recommended, when a better trained and distributed public health staff would be available throughout the province, and earlier detection and less frequent absenteeism from treatment can be ensured.

A new line of attack will also increase the effectiveness of the work now being done. What is now done serves to prevent deaths or keep deaths down at a very low level in a very fatal disease. But nothing is being done to control the incidence of the disease. Some attempt is made to detect cases early and to bring all new cases promptly under treatment. But *Kala azar* still continues to occur. The new line of attack would be to attack the infecting agent in its transmission and this could be done by measure against transmitting vector. This to all intents and purposes may be considered to be the sandfly *Phlebotomus argentipes*, which according to the investigations of R. O. A. Smith, has been proved to be able to transmit the infection. These preventive measures may take the form either of improving the sanitation of the village site and the village houses, when even a slight improvement may have a great effect in making conditions unfavourable to the sandfly or more actively, of instituting some form of insecticidal spraying of the village houses. Pyrethrum sprays, such as Pyrocid XX, might be used with good effect. Such spraying operations were carried out as an anti-malaria measures in certain villages with very unexpected yet very beneficial results in another direction for while the mosquitoes were destroyed and malaria is very well controlled, it was found that simple ophthalmia which was a regular scourge had completely disappeared as the infecting vector *Siphonella siphunculata* had been destroyed also, although its habitat in the thatched roof might have been expected to protect it from the pyrethrum. It may therefore be expected with some confidence that the sandflies will similarly be brought under control and one of the main sources of spread of infection removed. This will be one of the measures that will be tested during the next year, when the Health Unit is set up in Golaghat and it would be interesting to note the results.

38. *Leprosy*.—A total of 4,227 lepers was treated in leper Asylums and other centres of treatment under the Medical and the Public Health Departments. The Public Health Department dispensaries treated 1,234 lepers during the year *viz.* 734 in Sylhet, 46 in Goalpara, 146 in Kamrup, 184 in Darrang, 118 in Nowgong and 6 in Sibsagar. The number of treatment centres in the Public Health Department for the treatment of leprosy during the year was 62 excluding 4 old centres closed during the year. Sub-Assistant Surgeons of the Public Health Department undertake leprosy surveys in connection with *Kala azar* and yaws surveys. A special *Leprosy* Officer was trained and appointed during the year. He has visited with Rai Sahib Dr. Isaac Santra the Leprosy Propaganda Officer of the Indian Council of the British Empire Leprosy Relief Association who visited Assam in the last part of the year and remarked "In Assam there is wide diversity



of races and climates and it was thought that regional surveys might throw some light on regional variations. The Kacharis, a Mongolian race, some living in the hills and some in the plains, were studied. The incidence in the hills was found double that of the plains, but in both areas the proportion of leprous cases was very low, only about 60 per cent. Further studies along similar lines are being made in other racial groups in Assam and this work is still in progress."

Propaganda work in the shape of magic Lantern demonstration is regularly carried out by the Assistant Surgeons, Public Health Department in the districts of Sylhet, Goalpara, Kamrup, Darrang, Nowgong and Sibsagar. In the Tezpur Bihu Exhibition in April 1940, demonstration was given to about 5,000 people for two days, how to diagnose leprosy, how it spreads and how to combat it.

CHAPTER IV EPIDEMIOLOGY

39. Statement showing deaths from cholera by districts—

Districts	Estimated population 1939	Census population 1931	1940	1939	1938	1937
Cachar ...	592,454	538,811	443	204	265	307
Sylhet ...	2,982,213	2,724,342	1,965	2,390	7,564	4,371
Goalpara ...	948,560	882,748	11	50	1,999	37
Kamrup ...	1,036,586	976,746	153	227	1,872	343
Darrang ...	626,575	584,817	12	17	139	162
Nowgong ...	593,051	562,581	210	79	38	126
Sibsagar ...	1,009,043	933,326	3	42	19	62
Lakhimpur ...	775,794	724,582	12	11	11	32
Total ...	8,564,276	7,927,953	2,809	3,020	11,907	5,440

Statement showing Ratio per 1,000 of the population of deaths from cholera—

District	1940	1939	1938	1937
Cachar ...	0.74	0.36	0.49	0.57
Sylhet ...	0.65	0.84	2.78	1.60
Goalpara ...	0.01	0.05	2.26	0.04
Kamrup ...	0.15	0.22	1.92	0.35
Darrang ...	0.02	0.03	0.24	0.28
Nowgong ...	0.35	0.13	0.07	0.22
Sibsagar ...	0.003	0.04	0.02	0.07
Lakhimpur ...	0.02	0.01	0.02	0.04

The number of deaths from cholera during the last ten years was as follows :—

There was no serious epidemic of cholera in any district during the year. Only sporadic outbreaks were reported out of 2,809 deaths in the whole province. Sylhet district was responsible for 1,965 deaths. Cachar district recorded 443 deaths against 204 deaths in 1939. There were 210 deaths in the Nowgong district against 79 in the previous year.

CHAPTER V

FAIRS AND FESTIVALS

40. In the Cachar district three *melas*, viz., Bhuban Hill Sidheswar and Lala were held as in previous years. About 4,000 people visited the Bhuban Hill *mela* which lasted for 2 days only. The Sidheswar *mela* which lasted for 15 days was attended by 9,000 people and the *mela* at Lala was attended by 1,000 people daily on an average and it lasted for a week. A *mela* was also held at Latakandi on the occasion of the Baruni Ganga snan. There was a gathering of about 600 people daily. It lasted for 2 days only. One Epidemic Unit Sub-Assistant Surgeon and one Disinfectant Carrier attended the Bhuban Hill *mela*. The Sidheswar *mela* was attended by the Sub-Assistant Surgeon Katigora dispensary with a compounder and Disinfectant Carrier. The *mela* at Lala was attended by the Sub-Assistant Surgeon of the Lala dispensary. Sanitary arrangements were made in all the places and no epidemic disease was reported from any of them. Six *melas* were held at Dhakadakshin in the Sylhet district on the occasion of the Chaitra Baruni and the Rathjatra Festivals. About 1,000 people attended. Medical officer in charge of the Dhakadakshin Local Board Dispensary looked after the sanitation. A *mela* was held at Supatala village in the Karimganj subdivision of the Sylhet district, during the Rathjatra Festival. About 3,000 people attended. Two *melas* were held at Panatirtha and Dhal in the Sunamganj Subdivision of the Sylhet district. About 3,000 to 4,000 people attended. The Epidemic Unit Staff looked after the sanitary arrangements. A large gathering of pilgrims about 6,000 to 8,000 assembled in the Dhubri town on the occasion of Brahmaputra snan. Suitable sanitary arrangements were made by the Dhubri Municipality and a medical camp was stationed on the *mela* ground. The Health Officer was deputed to look after the sanitary arrangements and to render medical aid. Temporary latrines were constructed and arrangements were made for the supply of piped water in the town for the whole day and night. Another *mela* was held at Bogribari which was attended by about 4,000 people. Necessary sanitary arrangements were made and there was no epidemic of any kind.

In the Kamrup district, the Darranga fair was held, as usual. During the Hindu festival 'Ambubachi' a very large gathering of pilgrims assembled at Kamakhya Hill. A Sub-Assistant Surgeon of the Epidemic Unit with Disinfectant Carriers was deputed to render medical aid as in previous years, as this festival centre attracts pilgrims from all parts of India throughout the year—an average of 20—30 daily—more permanent arrangements should be made by the Temple authorities for the comfort and safety of the pilgrims, roads, drains should be made and improved and a permanent conservancy system established. This is all the more necessary as there is a permanent population about 3,000 persons living on the hill. The water supply on the hill is very poor depending on small springs and rain water tanks, the supply from which runs short in the dry weather. A permanent water supply for 10,000 persons should be installed either by pumping from the river or from a protected catchment area and rain fed reservoirs. The latter would be preferable as the maintenance would be simple and more economical. I think the time has come for devising a scheme for the better management of these festivals. Hitherto whatever measure was taken or preparations made for the sanitation of the festival area were entirely temporary even in the case of large festival expenses being borne mainly by the Local Boards and nothing by the festival authority. Now measures should be taken to provide permanent facilities for the accommodation of the pilgrims and for the sanitation of the festival centres. Most of the festivals in Assam are of local importance, and the present temporary arrangements with progressive improvements in regard to water-supply and food, and detection of sick persons, would meet the situation, especially if such personal protective measures as vaccination and cholera inoculation are regularly systematically carried out in the areas during the year. In regard to the larger festivals and those attracting pilgrims from wider areas, there should be a survey of the circumstances by a pilgrim or festival committee, consisting of representatives of the temple, the local board and the Government (Deputy Commissioner and Public Health Department), as a result of which a scheme will be drawn up for each festival centre for the efficient conduct of the festival, the provision of permanent amenities for the pilgrims and for the permanent improvement of sanitary conditions, to be carried out progressively from year to year. The cost of the scheme will be worked out and the relative share of the cost to be paid by the respective authorities determined and fixed by mutual consent. The execution of the scheme will be with the Public Health Department. From time to time, say at intervals of five years, the working of the scheme will be reviewed and necessary steps taken to ensure further progress. The experience gained in this way could be profitably applied to rural areas generally by adaptation to prevailing conditions.

CHAPTER VI

URBAN SANITATION

(Including notified areas)

MUNICIPAL WATER-SUPPLIES

41. There were 18 Municipal Boards and 10 Town Committees as in the previous year. Their total income was Rs.15,24,445 against Rs.11,58,372 in the preceding year. A sum of Rs.5,24,13 or 38.20 of the total income was spent on sanitary work original or recurring, as compared with Rs.5,60,930 or 48.42 per cent. last year. As usual, the Director and the Assistant Directors of Public Health inspected the municipalities and Small Towns and offered advice on public health matters. As pointed out in the inspection notes, much still remains to be done in every direction in the matter of improving sanitary conditions in the towns of the Province.

An endeavour is being made to draw up in consultation with the Chairmen of Municipalities a definite programme of sanitary improvements within the finances of the local authority, but not much progress has been made, as local authorities find difficulties in implementing such schemes when the time arrives for putting the proposals into practice.

Public Works Department incurred an expenditure of Rs.7,591-10-0 on the maintenance of water-supplies, drainage and town improvement as compared with Rs.11,565-7-0 in the preceding year.

CHAPTER VII

RURAL SANITATION

42. A sum of Rs.1,70,888 was spent by the Local Boards on Public Health measures during the year 1940 against Rs.1,86,816 in the preceding year.

The bulk of the population of Assam lives in rural areas, consequently the health and prosperity of these areas is a matter of vital importance. Local Boards should pay special attention to the provision of adequate and safe water supplies for villages. Until this is done no material reduction in the incidence of water-borne diseases can be expected. The Public Health measures which are extensively carried out in rural areas are protection against cholera by inoculation, the use of bacteriophage in the treatment of cholera cases and protection against small-pox by vaccination. *Kala azar* treatment measures continue to be carried out on the same lines as in previous years. Tablets of quinine Reinforced Cinchona Febrifuge for the treatment of Malaria are sold in all villages post offices and through other accredited agents. Treatment of Yaws, Leprosy, Malaria, Influenza, Minor Eye complaints, Dysentery and Diarrhoea is also undertaken by Public Health Department dispensaries in the rural areas. Adulteration of foodstuffs is reported to be increasing in the Province. This can be controlled by strict supervision, by regular inspection, and submission of samples to the Public Analyst for analysis and the inflicting of adequate punishment in all cases where unwholesome food is sold for consumption and where adulteration of articles of food is reported by the Public Analyst.

It is hoped that Local Boards will take more active interest and deterrent action to prevent adulteration, but it is feared that not much can be expected as Local Boards are showing a tendency or desire to divest themselves of these responsibilities holding that they should be taken over by the Government. While this would be a desirable consummation in that uniformity and rapidity of action and continuity of policy will be ensured, it would be a considerable inroad into the practice of Local Self Government.

Rural water supply.—The Government of India in 1935-36 made available a sum of Rs.5 lakhs for the improvement of village water supplies in Assam. Of this grant the sum of Rs.4,62,340-12-0 was allotted to the various districts and the latest available returns show that a sum of Rs.2,64,824-14-3 was expended in 1939. The result has been the provision of 10 tanks, 218 wells, 118 ring wells 95 tube wells, a total of 511 sources of water supply. The quality of the water found was reported to be good and the quantity sufficient in the case of most of these tanks and wells. In only 28 cases were the results reported to be unsatisfactory and in 11 tube wells the results are not known.

CHAPTER VIII

43. *Malaria.*—Malaria fever continues to be the most widespread disease in the Province. It is prevalent throughout the province and almost constantly in an epidemic form. A total of 8,52,379 cases of malaria fever were treated in all hospitals and dispensaries in the plains districts, as follows :—

Six lakhs fifty three thousand one hundred twenty four cases were treated in the dispensaries under the Medical Department and 199,255 cases were in the Public Health Department dispensaries, while 106,080 persons purchased quinine reinforced cinchona febrifuge from post offices and other agents as during the year 5,304 parcels of quinine reinforced cinchona febrifuge were sold to the plains districts.

There are large areas in every district where there are no facilities for medical aid and quinine reinforced cinchona is not readily available. The number of patients estimated above is certainly not a complete statement of the actual number of cases suffering from malaria. The figures of mortality from malaria are not available. As noted in paragraph 29 “Fevers” were responsible for 93,677 deaths against 103,892 in the preceding year. A very large percentage of these deaths is attributable to malaria fever and although it is a poor index, owing to the general unreliability of the registration of the cause of deaths, the deaths under the heading “Fever” are generally used for the estimation of the mortality from malaria.

As in previous years, quinine reinforced cinchona febrifuge was used as a general preventive and curative agent against malaria and was sold to the public at two annas per tube containing ten tablets of four grains each up-to June, and two annas and six pies thereafter. The Government of Assam gave a grant of Rs.20,000 to the Assam Medical Research Society for the purpose of research and the conduct of anti-malaria work.

1. *Activities of the Assam Medical Research Society.*—An active and very profitable liaison has been established between the Public Health Department and the Assam Medical Research Society, which it is hoped will become still closer, and the malaria and other work of the Society will become a part of the work of the Department, without interfering with the constitution of the Society. The Assam Medical Research Society continued to confine itself to the study of malaria and its control during the year 1940.

2. The campaign against malaria is now being carried out in co-ordination with the Public Health Department.

3. The annual training class for medical Assistants and malaria inspectors was held in May and June, 1940. Fourteen medical licentiates including 4 from the Medical and 5 from the Public Health Departments underwent training and all of them passed the examination held at the end of the course. Out of 12 candidates admitted for training as malaria inspectors 11 completed the course satisfactorily.

The campaign against this disease may be described under 4 heads (a) control measures (b) sale and free distribution of cinchona alkaloids (c) training of personnel and (d) research. In all these activities the department is guided by the technical advice of the Assam Medical Research Society of which the Government is the largest constituent and the schemes formulated in consultation with the Society are scrutinised by the Provincial Advisory Malaria Committee consisting of both officials and non-officials. The provincial malaria budget is then finally adopted.

(a) Control measures are in progress in 27 centres in the non-excluded areas and 4 centres in the excluded areas. They consist mostly of treating the breeding grounds of *A. minimus*, the main vector, with malariol or paris green. In a few areas where the water-places are extensive relative to the size of the population spray killing adult mosquitoes in houses is carried out by the use of a mixture of 1 part of pyroside 20 with 19 parts of kerosine twice a week. In all these centres the control measures have been attended with considerable reduction in the incidence of malaria. Some examples are furnished below.

							Spleen Rates (per cent.)	
							Before control	After control
Nowgong	...	...	...	...	...	...	50.8	4.3
Mangaldai	...	...	...	...	...	...	31.5	3.8
North Lakhimpur	...	...	...	...	...	...	31.6	11.9
Doom dooma	...	...	...	...	...	...	56.5	11.7
Gauhati	...	...	...	...	...	...	21.6	2.9
Jagadishpur...	...	...	...	...	...	...	48.0	2.0

The average cost of control measures in these areas varies from about Rs. 1,000 to Rs. 2,000 per annum and depends entirely on the extent of the *A. Minimus* breeding grounds and not on the size of the population. Anti-larval measures are therefore relatively more economical in areas with large concentrations of population such as urban areas or rural areas grouped together on the banks of one or two streams. The cost of spray killing adult mosquitoes on the other hand depends on the number of houses requiring to be sprayed and hence on the population. This measure appears to be promising of good results and capable of adoption in the campaign against rural malaria at smaller cost than anti-larval measures. In this connection the feasibility of cultivation of pyrethrum plants from which pyroside 20 is extracted requires careful consideration at the hands of the Agricultural and Forest Departments. The approved variety of pyrethrum (*viz.*, *Cinerarifolium*) is being grown in the Government Botanic Garden in Shillong by the Superintendent and results have so far been satisfactory. The flower heads are being assayed for the quality of the pyrethrum obtained. This will open up a very useful industry for the Government to develop for the benefit of the province.

(b) Sale and free distribution of alkaloids.

Quine Reinforced Cinchona Febrifuge is sold through Post offices at Rs. 2-8 per packet of 10 tablets each weighing 4 grs. The price per lb. of Quinine Reinforced Cinchona Febrifuge has risen from Rs. 16-11 in April 1940 to Rs. 17-12 in December 1940. While the market price of cinchona alkaloids is generally governed by the Kina Bureau depending on world conditions it is not quite clear why the price of cinchona alkaloids made in India under the auspices of the provincial Governments should not be kept within bounds, at least in so far as supplies to Government Agencies are concerned. This province has however no voice in the matter and the only solution is for the Government to take in hand the cultivation of cinchona within the province on an extensive scale so as to meet its requirements in full. Notwithstanding the increased cost of quinine Reinforced Cinchona febrifuge the sale price remains as before and the slight loss incurred on that account debited to the Public Health Budget. In 1940, 698 lbs. of quinine Reinforced Cinchona Febrifuge were sold through Post Offices, 290 lbs of Cinchona alkaloids were distributed free through the agency of the Public Health dispensaries. The total quantity of cinchona alkaloids distributed free in the province through various agencies in addition to the sale of 698 lbs. of quinine Reinforced Cinchona Febrifuge referred above is as follows:—

Dispensaries of the Medical Department,	...	...	...	549 lbs.
„ „ Public Health Department,	...	...	...	290 lbs.
Total	...	...	...	839 lbs.

(c) Training of personnel.

There are altogether 4 gazetted officers of the Public Health Department trained in malaria at the Malaria Institute of India and 48 Sub-Assistant Surgeons of the Department trained by the Assam Medical Research Society. Every year about 5 or 6 Sub-Assistant Surgeon are trained by the Society for a period of 2 months in Shillong and for the rest of the year in some field station.

4. *Surveys*—Six new surveys were undertaken during the year, two in tea garden (Namdang and Dhelakhat), two under Assam Railways and Trading Company, Limited (Baragolai and Ledo) and two in Government areas (Saikowaghat and Sadiya). Three re-surveys were carried out in Shillong, Gauhati and Gouripur respectively.

Experimental malaria control projects—

These were continued in the six centres where they were in progress in co-operation with the Public Health Department (Gauhati, Nowgong, Mangaldai and North Lakhimpur urban areas and Dishpur and Jagadishpur rural areas).

Gauhati—The results after 5 years of anti-larval work (oiling and parisgreening) continue to be satisfactory. The spleen rates have dropped from 21.6 per cent. in 1934 to 2.9 per cent. in 1940. A design for a syphon flush in the principal breeding ground for *A. minimus* has been approved and the work will be taken up in 1941.

Nowgong—Anti-larval work (paris greening only) for the last 5 years has brought the spleen rates down to 4.3 per cent. in 1940 from 51.2 per cent. in 1935. This area is liable to epidemic outbreaks and although a part of the decline may be due to natural causes the town completely escaped the effects of the epidemic which was prevalent all round in 1939.

North Lakhimpur—In this area too anti-larval work has reduced the spleen rates gradually from 31.8 per cent. in 1935, to 12.0 per cent. in 1940. An extensive paddy area liable to be submerged during flood presents some difficulties in anti-larval work during July and August.

Mangaldai—The fall in spleen rates from 36.6 per cent. in 1935 to 3.8 per cent. in 1940 was due mainly to anti-larval work (oiling and parisgreening). Some semi-permanent measures are under contemplation to save the cost of recurrent measures. The main river was kept free from all vegetation by frequent clearing and *A. minimus* was by this measure alone entirely put out without applying any larvicide.

Jagadishpur—In this rural area anti-larval work (parisgreening) has reduced the spleen rates from 48.0 per cent. in 1935 to 2.0 per cent. in 1940. The cost is only Rs.714 per annum and as there is sufficient concentration of population works out at only 0.4-0 per head per annum.

Dishpur—In this small rural area anti-larval work hitherto in progress was found expensive and spraying all houses and cattlesheds etc., every week with a mixture of pyroclide 20(1 part) and kerosine (19 parts) was resorted to. It is too soon to assess results in the absence of accurate sickness figure. But the infant index in the village is found to be very much smaller than that in a neighbouring village—Japring kept under observation as control.

Technical guidance in other control projects—This was furnished in 13 centres other than the experimental areas referred above. Periodical inspections were carried out and recommendations for intensifying the work made from time to time. The Society also furnished technical guidance in malaria control in progress in 7 tea-gardens. In all the centres the incidence of malaria was held under check due to the control measures.

5. *Research*—This is exclusively the province of the Assam Medical Research Society. The Society has recently brought out an excellent resume of its activities since its inception in 1931 and a very brief summary of the more salient features is furnished below.

1. As a result of the work carried out by the Society, the province may be divided epidemiologically into 3 areas :—

- (a) Areas which are healthy with spleen rates of less than 10 per cent.—no permanent or temporary *A. minimus* breeding grounds, malaria almost entirely imported ;
- (b) Areas in which malaria shows moderate to high endemicity—spleen rates between 10 per cent. and 40 per cent.—transmission seasonal, the advent of the monsoon flushing all breeding grounds of *A. minimus* but creating no additional temporary breeding grounds to keep up transmission and
- (c) areas where malaria shows hyperendemicity—spleen rates 50 to 100 per cent.—Transmission almost continuous.

2. *Bionomics of A. minimus*. The breeding habits of this species have been well-defined. It prefers slow running, silt-free streams with marginal vegetation, and also breeds in seepage channels, terraced ravines, and shallow wells with a high water table. It does not winter or hibernate and its full life cycle from egg to adult takes place all through the year despite low temperatures in winter although the cycle is then much slowed down. Transmission may and does take place even in winter although to a limited extent. Thus in areas with continuous transmission no restriction of control is indicated during the cold weather. *A. minimus* prefers a combination of vegetation and moving water and the larvae always thrive in the marginal vegetation which checks the velocity. Hence clean weeding of margins appears, by itself, to be a practical control measure in certain areas without the application of Larvicides. The adult mosquito is predominantly a house-rester during day time. Hence it lends itself to control by spray-killing.

3. *Malaria carrying anophelines in Assam*.—*A. minimus* is the villain of the piece. The salivary glands were found infected in 391, and the stomach infected in 393, in the 725 infected specimens found in a total of 14,092 *A. minimus* mosquitoes dissected from 1931-1940. *A. annularis* was found infected in 1940 in Goalpara district (9 out of 6013 specimens—6 in glands and 3 in gut). *A. maculatus* was found infected in Shillong in 1932-34 and again in 1940 (28 out of 7381 specimens in the period 1931-40). The role of these two species as possible vectors is under further study. Other species in which stray infections were met with are *A. culicifacies*, *A. philippinensis* and *A. aconitus*. These, however, are not considered as of any importance in malaria transmission in Assam.

4. During the year 1940 a total of 16,107 anophelines of 15 different species were dissected and 142 infections met with of which 119 were among *A. minimus* (out of 3,450) 13 in *A. maculatus* (out of 2,318) 9 in *A. annularis* (out of 6,013) and 1 in *A. aconitus* (out of 143). During the same year 91,850 larvæ of 22 different species of anophelines and 30,172 adults of 17 different species of anophelines were identified 17,271 children between 2 and 10 years examined and 5,224 among them (30.2 per cent.) found to have enlarged spleen, and 21,466 blood slides examined among which 3,906 were found to contain malaria parasites (18.2 per cent.). Among these 2,605 were *P. falciparum* 849 *P. vivax*, 245 *P. malriae* and 207 mixed infections.

5. Studies on infant malaria parasite indices in hyperendemic areas show some evidence of an inherited immunity in infants below 2 months of age, in the earlier phases of transmission, which breaks down in the later phases not because of the then greater prevalence of *P. falciparum* but probably due to the prevalence of a greater number of strains. There is a special predilection to relapses in April. The infant index offers a suitable measure of the amount of transmission in any year and the index in the group 2 to 3 months of age the best evidence of the quantum of seasonal infection.

6. *The future policy.*—The Research Officer of the Assam Medical Research Society outlined a malaria policy for adoption by the Government of Assam based on the Society's researches in the past and the results of the experimental control schemes. This policy has since been warmly supported by the Provincial Advisory Malaria Committee and it is gratifying to record that the Government have indicated their general concurrence while the details are under further examination. The policy consists of comprehensive surveys of each district in turn in order to map out the distribution of malaria, organisation of free distribution of quinine in malarious villages, institution of control measures in selected highly malarious areas with an adequate concentration of population, intensive cultivation of cinchona in the province, provision of adequate funds for this purpose, and later, suitable legislation to render control measures feasible and effective. In pursuance of this policy a survey in Cachar District has been sanctioned by the Government and the survey will be taken up from 1st September 1941. I wish to take this opportunity to commend strongly to the attention of the Government the imperative and immediate need to undertake intensive cinchona cultivation in the province.

It is well-recognised in malaria control by recurrent measures against the mosquito that supervision is the *sine qua non* for success. Provision of adequate supervisory staff solely for malaria control may not be feasible owing to limitation of funds. Hence a scheme of rural malaria control combined with other health work including vaccination, control of epidemics, provision of borehole latrines and the improvement of village sanitation, improvement of water supplies, midwifery aid, and health education has just been commenced in a group of villages around Hojai in Nowgong district and the results will be watched with interest.

Although the Public Health Department has no malaria organisation of its own it has not felt the void in view of its very close collaboration with the Assam Medical Research Society. The Society's future after 1st April 1942 is rendered somewhat uncertain in view of the annual grant from the Government of India being likely to cease from that date. This province has had the unique advantage in the country of an independent body devoted to malaria research, pooling the resources of all the interests in the province including the Government, the Industrial, agricultural and transport interests, and rendering service to all its constituents. It has so well justified its existence by the excellent record of its work that its future should not be a source of uncertainty. While this is a matter for decision by all its constituents the Government as its principal contributor and beneficiary has a special responsibility on this behalf. Its continuance in its present form is conducive to its unhampered further activities to the benefit of all its constituents. Even if the other interests are unable to increase their financial support in order to make up the deficit arising out of the discontinuance of the Government of India grant it is primarily to the benefit of the local Government and the Public Health Department to raise the Government contribution suitably and balance the budget of the Society. I am strongly of the opinion that the Research Officer should be borne on the provincial cadre so that he may work in more intimate contact with the officers of the Public Health and other departments. Service to other constituents may as usual be rendered under general administrative control of the Honorary Secretary and independent of the Public Health Department. The Department will greatly benefit in other activities than in malaria by the closer association of this officer in the work of the department. While this proposal involves no additional expenditure to the Government the Society's concurrence will doubtless have to be obtained but they may not object to their own nominee being absorbed into a responsible post under the Government so long as his services to the other constituents are guaranteed as at present and such service are made liable to the control of the Honorary Secretary of the Society and of its Government Body.

SALE OF QUININE

44. The table below shows the quantities of quinine sold, district by district, during the year 1940 :—

Districts					Treatment parcels sold in—		Difference	
					1939	1940	Increase	Decrease
1					2	3	4	5
Cachar	...	...	...	...	296	357	61	...
Sylhet	...	...	...	...	1,620	1,488	...	132
Goalpara	...	...	...	...	719	600	...	119
Kamrup	...	...	...	...	1,286	915	...	371
Darrang	...	...	...	...	681	540	...	141
Nowgong	...	...	...	...	966	533	...	433
Sibsagar	...	...	...	...	1,159	614	...	545
Lakhimpur	...	...	...	...	282	257	...	25
Khasi and Jaintia Hills	...	...	...	...	605	560	...	45
Naga Hills	...	...	...	...	82	69	...	13
Lushai Hills	...	...	...	...	916	611	...	305
Garo Hills	...	...	...	...	75	67	...	8
Sadiya Frontier Tract	...	...	...	...	72	88	16	...
Manipur State	...	...	...	...	3	9	6	...
Total	...	...	...	...	8,762	6,708	...	2,054

During the year under report 6,708 parcels of quinine Reinforced Cinchona Febrifuge were sold against 8,762 in the previous year showing a decrease of 2,054 parcels. The decrease is shared by all districts except Cachar, Sadiya Frontier Tract and Manipur State. The drug was sold at two annas per treatment of 10 tablets each upto June and two annas and six pies thereafter.

The following quantities of quinine and cinchona Febrifuge were obtained and allotted to Civil Surgeons for free distribution to indigent malaria patients in the badly affected areas of the undernoted districts :—

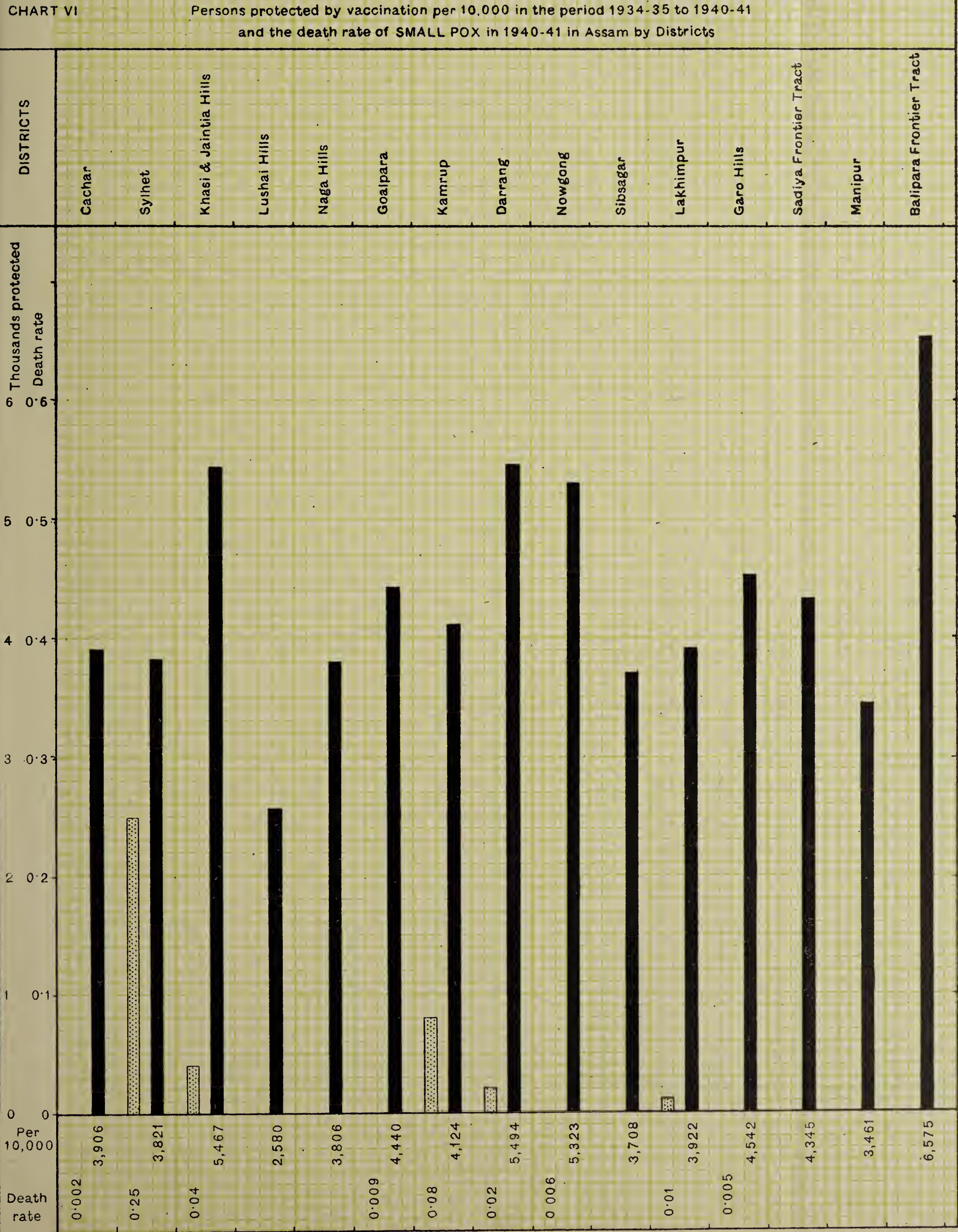
				Quinine Sulph.	Cinchona Febrifuge	Quinine Reinforced Cinchona Febrifug
Cachar	...	...	...	4 lbs.	6 lbs.	...
Sylhet	...	...	...	40 „	60 „	...
Goalpara	...	...	...	14 „	21 „	...
Kamrup	...	...	...	20 „	30 „	...
Darrang	...	...	...	7 „	7 „	...
Nowgong	...	...	...	14 „	21 „	...
Sibsagar	...	...	...	22 „	22 „	...
Lakhimpur	...	...	...	...	...	...
Khasi and Jaintia Hills	...	...	...	...	...	...
Total	...	...	...	121 „	167 „	...

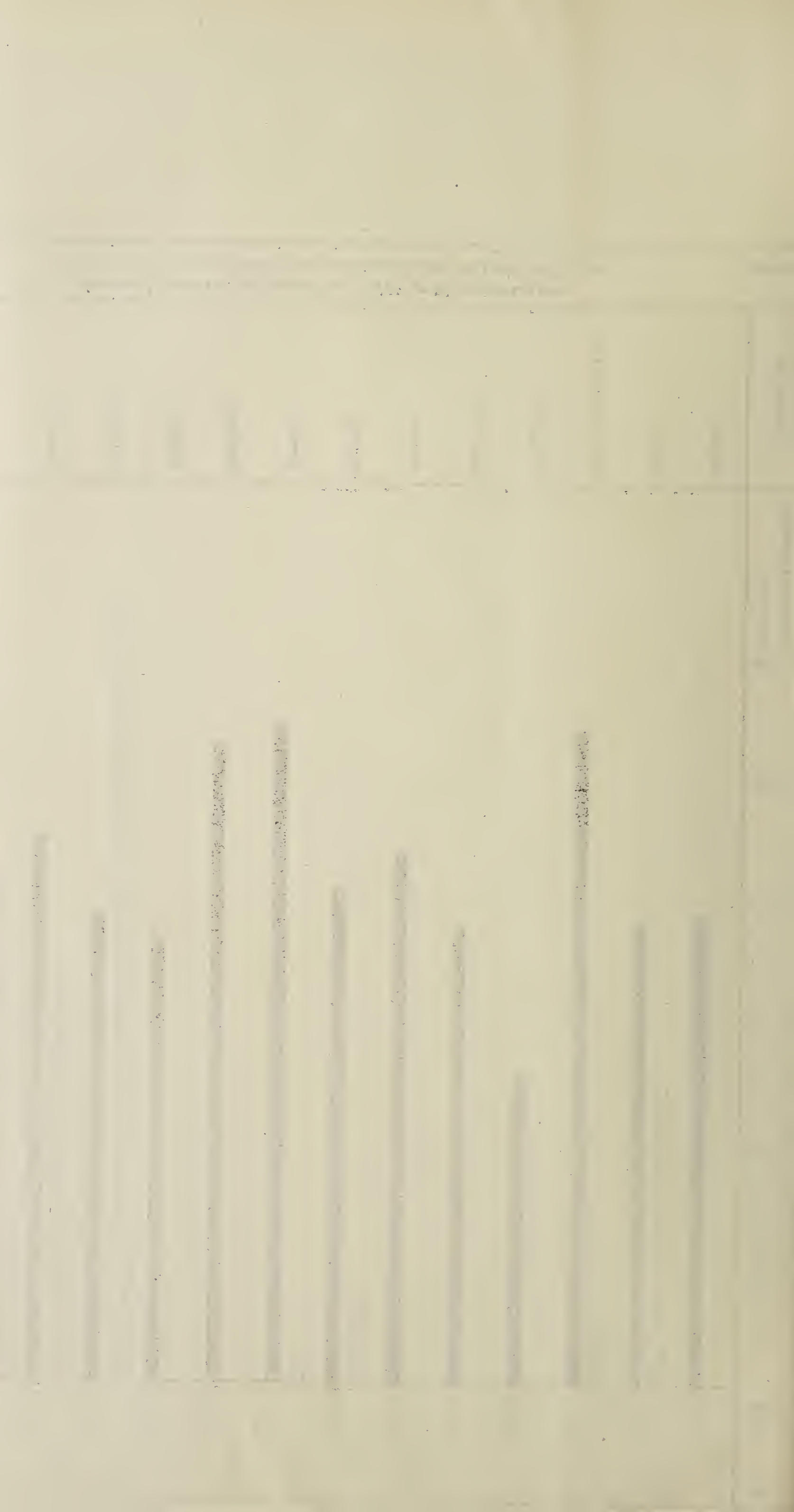
1,500 lbs. of Java quinine sulph was received in December 1940 through the Government of India for free distribution to the indigent malaria patients.

A statement showing separately quantities in lbs. of (a) quinine and (b) secondary alkaloids of cinchona distributed free or at reduced price by the Public Health and Medical Departments and other sources during 1940 is appended :—

Statement showing separately quantities in lbs. of (a) quinine and (b) secondary alkaloids of cinchona distributed free or at reduced price by the Public Health and Medical Departments and other sources during 1940

Districts	Public Health Department						Medical Department						Jail Department					
	Quinine			Cinchona			Quinine			Cinchona			Quinine			Cinchona		
	Free	On payment	On payment	Free	On payment	On payment	Free	On payment	On payment	Free	On payment	On payment	Free	On payment	On payment	Free	On payment	On payment
	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.
Cachar	21 5 2 0	..	..	13 5 0 0	..	..	16 11 0 30	..	..	17 11 0 0	..	..	3 0 0 0	..	..	14 4 0 0	..	..
Sylhet	40 0 0 0	..	..	64 0 0 0	..	..	40 0 0 0	..	..	32 0 0 0	..	..	17 13 0 0	..	..	..	..	..
Goalpara	40 2 5 0	..	..	38 0 5 0	..	..	176 6 7 0	..	..	251 12 4 0	..	..	11 0 0 0	..	..	..	..	..
Kamrup	33 8 0 0	..	..	50 12 0 0	..	..	17 11 4 0	..	..	23 3 1 0	..	..	15 14 0 0	..	..	..	..	..
Darrang	22 13 0 0	..	..	30 4 0 0	..	..	..	..	..	..	..	..	7 4 0 0	..	..	13 8 0 0	..	..
Nowgong	41 1 0 0	..	..	52 7 0 0	..	..	55 7 3 16	..	..	103 15 7 30	..	..	3 0 0 0	..	..	12 0 0 0	..	..
Sibsagar	43 8 3 0	..	..	33 7 0 0	..	..	9 2 0 0	..	..	6 8 0 0	..	..	5 5 0 0	..	..	1 4 0 0	..	..
Lakhimpur	81 6 6 30	..	..	8 0 2 0	..	..	15 1 0 0	..	..	5 0 0 0	..	..	7 1 0 0	..	..	5 4 0 0	..	..
Khasi and Jaintia Hills	..	..	..	..	..	..	52 0 0 0	..	..	4 12 6 24	3 0 0 0	..	3 0 0 0	..	..	0 12 0 0	..	..
Naga Hills	..	..	..	..	..	..	45 0 0 0	..	..	79 8 0 0	..	..	1 8 0 0	..	..	1 0 0 0	..	..
Lushai Hills	..	..	..	..	..	..	58 8 0 0	..	..	14 11 0 0	..	..	1 5 0 0	..	..	..	..	..
Garohills	.. 8 11 0	..	..	..	..	..	33 4 0 0	..	..	10 9 0 0	..	..	..	..	..	..	..	..
Sadiya Frontier Tract	..	..	9 6 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	344 6 3 30	9 6 0 0	0 0 0 0	290 3 7 0	..	..	519 3 6 46	16 8 0 0	16 8 0 0	549 11 2 54	16 10 0 0	..	76 2 0 0	..	..	48 2 0 0	..	..
Police and Assam Rifles Hospitals																		
Local Fund																		
Other Departments																		
Districts	Quinine			Cinchona			Quinine			Cinchona			Quinine			Cinchona		
	Free	On payment	On payment	Free	On payment	On payment	Free	On payment	On payment	Free	On payment	On payment	Free	On payment	On payment	Free	On payment	On payment
	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.	Lbs. oz. dr. gr.
Cachar	10 5 0 0	..	..	1 0 0 0	..	..	109 12 0 0	..	..	126 8 0 0	..	..	..	..	..	..	..	..
Sylhet	5 4 0 0	..	..	4 8 0 0	..	..	5 0 0 0	..	..	5 0 0 0	..	..	104 1 0 0	..	..	..	..	..
Goalpara	20 0 0 0	..	..	..	..	..	216 5 2 0	..	..	289 15 0 0	..	..	..	..	..	..	..	102 14 7 0
Kamrup	4 10 0 0	..	..	2 10 0 0	..	..	118 12 0 0	..	..	173 8 0 0	..	..	48 9 0 0	..	..	8 0 0 0	..	..
Darrang	25 9 0 0	..	..	3 8 0 0	..	..	..	..	..	..	..	..	4 15 4 40	..	..	4 8 0 0	..	..
Nowgong	12 12 0 0	..	..	..	..	..	64 8 4 0	..	..	72 14 4 0	..	..	..	..	..	..	..	..
Sibsagar	2 8 0 0	..	..	..	..	..	57 13 0 0	..	..	41 5 0 0	..	..	2 6 0 0	..	..	..	..	..
Lakhimpur	..	..	..	..	..	..	..	..	..	..	..	..	8 0 0 0	..	..	4 0 0 0	..	..
Khasi and Jaintia Hills	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Naga Hills	22 12 0 0	..	..	8 8 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lushai Hills	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Garohills	8 7 0 0	..	..	0 14 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sadiya Frontier Tract	30 13 0 0	0 7 0 0	0 7 0 0	1 15 0 0	..	..	7 9 0 0	..	..	0 2 0 0	..	..	..	..	..	..	..	..
Total	143 0 0 0	0 7 0 0	0 7 0 0	22 15 0 0	..	..	579 11 6 0	..	..	709 4 4 0	..	..	167 15 4 40	..	..	16 8 0 0	102 14 7 0	..





CHAPTER IX

MATERNITY AND CHILDWELFARE

45. During the year under review a total of 34,610 infants died giving a infant mortality rate of 141.75. This large number can be reduced if the work of the Public Health Department can be carried into the villages as it will be of the reorganisation proposals of the Director of Public Health are given effect to. This will result in more propaganda work being done more maternity and child-welfare centres being opened throughout the Province when a large number of properly trained midwives will be made available and more detailed attention can be given to this important matter. The infant mortality rates recorded in rural and urban areas were 142.73 and 108.25 respectively. The statistics of child mortality suffers from the same defects as other statistics, as they are collected through the same agencies, *viz.*, chaukidars and gaonburas. No special enquiries have been made to verify and check these vital statistics beyond the usual verification. The death-rate of children under 5 years was 20.98. Maternity and child-welfare organisation continue to be in the hands of the Red Cross Society. There is no Health Visitor Training School in the province and no provision for the inspection of welfare centres by the Department exists. No other attempt except propaganda with the aid of magic lantern demonstrations was made to reach rural areas in connection with maternity and child-welfare work and this is quite inadequate. Figures are not available regarding the proportion of births delivered in hospitals, by private doctors, by trained midwives, by untrained midwives and without attendants. Particular note is made of the interest now being taken by the Goalpara district after several years' inactivity. The Cachar centre has again been most active and deserves special credit for the way in which it has carried on its ordinary activities in addition to the organisation of a very active branch for the war effort. The welfare centres at Shillong, Sylhet and Nowgong also continued their good work. The increasing number of cases dealt with at these centres is an indication of their growing popularity amongst the general public. The Shillong Municipal Board continues to take a keen interest in the welfare centre at Shillong and make liberal grants towards its upkeep. Seven girls who had been selected with a view to subsequent training as Health Visitors at the Sir John Anderson Health School were sent to the Dufferin Hospital in Calcutta for training as midwives. Two others completed their Midwives' course and went on to the Anderson Health School. The Siva-Sundari Nari-Sikshasram at Silchar provides a course of training for *dhais*, *i.e.*, midwives trained in the local language. The scheme of training was in accordance with the regulations of the Victoria Memorial Scholarship Fund, New Delhi.

There is no recognised institution for the training of midwives in the province. The services of doctors attached to hospitals and maternity homes are available for domiciliary midwifery. There is no provision for the supervision of salaried midwives, or *dhais* either in domiciliary or in private practice. The Assam Births and Deaths Registration Act, 1935, controls the registration of births and deaths in the province. No provision exists for the control of the training, registration and supervision of nurses, health visitors, or *dhais*. There is no prohibition of practice by unregistered midwives and *dhais* and there is no regulation regarding qualifications and appointment of staff in maternity and child-welfare work and the inspection of maternity hospitals and maternity homes. The Indian Factories Act controls the conditions under which women and children work in industrial undertakings. There is no Children's Act in the province. The chief hindrance to the advancement of this work are ignorance, prejudice and partly poverty on the part of the bulk of the population.

TABLE SHOWING MATERNITY AND CHILD-WELFARE CENTRES, HEALTH VISITORS AND TRAINED MIDWIVES IN RURAL AND URBAN AREAS IN ASSAM DURING 1940

[illegible]

TABLE SHOWING PUBLIC HEALTH SERVICES IN RURAL AND URBAN AREAS IN ASSAM DURING 1940

Districts	Rural areas										Urban areas									
	Medical Officers of Health				Epidemic unit staff	Sanitary Inspectors	Vaccinators		School Medical officers	Other Health staff	Medical Officers of Health				Sanitary Inspectors	Vaccinators		Inspectors of Vaccination and Sub-Inspectors of Vaccination	School Medical officers	Other staff
	Holding D. P. H.		Licentiates (L. P. H.)				Whole time	Part time			Whole time	Part time	Male	Female						
	Whole time	Part time	Whole time	Part time																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Cachar	2 S. A. S.s 4 E. Asstts.	..	30	..	..	..	..	..	..	..	1	1	..	I. V.—1 } S. I. V.—2 } 3	..	Two Sub-Assistant Surgeons employed on Public Health duty.
Sylhet ..	1	..	..	..	7 S. A. S.s 14 E. Asstts.	..	97	..	..	..	..	..	..	..	3	7	..	I. V.—1 } S. I. V.—8 } 9	..	One Assistant Surgeon and 36 Sub-Assistant Surgeons employed on Public Health duty.
Goalpara	3 S. A. S.s 6 E. Asstts.	..	40	..	..	..	..	..	..	..	2	3	..	I. V.—1 } S. I. V.—4 } 5	..	One Assistant Surgeon and 6 Sub-Assistant Surgeons are employed on Public Health duty.
Kamrup	2 S. A. S.s 4 E. Asstts.	..	68	..	..	..	..	..	..	..	1	5	..	I. V.—1 } S. I. V.—3 } 4	..	One Assistant Surgeon and 13 Sub-Assistant Surgeons are employed on Public Health duty.
Darrang	2 S. A. S.s 4 E. Asstts.	..	37	4	..	..	..	..	..	..	1	2	..	I. V.—1 } S. I. V.—2 } 3	..	One Assistant Surgeon and 5 Sub-Assistant Surgeons are employed on Public Health duty.
Nowgong	1 S. A. S. 2 E. Asstts.	..	26	..	..	..	..	..	..	..	..	1	..	I. V.—1 } S. I. V.—1 } 2	..	One Assistant Surgeon and 15 Sub-Assistant Surgeons are employed on Public Health duty.
Sibsagar	3 S. A. S.s 6 E. Asstts.	..	48	..	..	..	..	..	..	..	1	4	..	I. V.—1 } S. I. V.—3 } 4	..	One Assistant Surgeon and 16 Sub-Assistant Surgeons are employed on Public Health duty.
Lakhimpur	1 S. A. S. 2 E. Asstts.	..	32	..	..	..	..	..	..	..	2	4	..	I. V.—1 } S. I. V.—2 } 3	..	Two Sub-Assistant Surgeons are employed on Public Health duty.
Khasi and Jaintia Hills	8	..	..	..	1	..	..	..	2	1	..	I. V.—1 } S. I. V.—1 } 2	..	One Assistant Surgeon at Public Health Laboratory, 1 Bio-Chemist and 1 Sub-Assistant Surgeon at Vaccine Depot.
Naga Hills	7	..	..	..	..	..	..	..	..	..	..	S. I. V.—1	..	....
Lushai Hills	8	..	..	..	..	..	..	..	..	..	..	S. I. V.—1	..	....
Garo Hills	7	..	..	..	..	..	..	..	..	..	..	S. I. V.—1	..	Five Sub-Assistant Surgeons on Public Health duty.
Sadiya Frontier Tract	6	..	..	..	..	..	..	..	1	1	..	S. I. V.—1	..	....
Manipur State	9	..	..	..	..	..	..	..	..	3	..	I. V.—1 } S. I. V.—1 } 2	..	....

CHAPTER X

SCHOOL HYGIENE AND MEDICAL INSPECTION OF SCHOOL CHILDREN

46. The Assistant Directors of Public Health, Surma Valley and Hill Division and Assam Valley Division, inspected schools and delivered lectures on health and hygiene to the students and the staff.

Periodical medical inspections of selected institutions were carried out and suggestions made for the improvement of the health of the boys and general sanitation of the schools and hostels attached thereto by the medical officers in charge.

CHAPTER XI

HEALTH PROPAGANDA

47. Assistant Surgeons of the Public Health Department in course of their inspection of dispensaries gave demonstrations and lectures with the aid of magic lantern slides. The subjects dealt with included common prevalent diseases such as cholera small-pox, *kala azar*, malaria, tuberculosis, leprosy and also general sanitation and food.

KING GEORGE THANKS GIVING (ANTI-TUBERCULOSIS) FUND

48. The district and subdivisional sub-committees of the King Emperor's Fund, during the year followed the example of the Assam Provincial Committee, ceased to function and reconstituted themselves as branches of the Tuberculosis Association of Assam.

The Tuberculosis clinic in Shillong (No.1 chest clinic, Shillong.) :—This clinic which was begun in the latter part of 1937, and placed under the Civil Surgeon and located in the Civil Hospital, Shillong, where four beds were used for tuberculosis patients continued to work with increasing popularity. As there were no beds for women, the Association sanctioned a grant of Rs.1,000 for the extension of the tuberculosis ward in the Civil Hospital. This extension has proved very useful. The medical staff of the Clinic continues to be honorary and proposals are being carried out for the further training of one of these honorary medical officers as a Tuberculosis specialist. The two home visitors one male and another female, continue to work satisfactorily and it is considered that much of the popularity of the clinic is due to their good work. Steps will be taken to give the woman Home Visitor a proper course of training in Calcutta when opportunity offers.

A small but suitable X-Ray plant was acquired for the clinic in November 1940. This has proved to be a very good investment, as not only has its installation effected an economy in the expenses of the clinic, but it promises also to be a source of income and a relief to the funds of clinic. The X-Ray plant has greatly increased the usefulness of the clinic. As a development of the tuberculosis work started by the clinic it may be mentioned that Dr. Hughes of the Welsh Mission Hospital in Shillong has begun a research to determine the prevalence and type of the local tuberculosis infection.

The total number of patients treated in the Shillong clinic was 206 against 132 in the preceding year.

The institution of this new organisation should be of the utmost importance and value in directing and co-ordinating an anti-tuberculosis campaign throughout the province, not only in regard to the detection and the treatment of persons infected with tuberculosis, but also in regard to propaganda directed towards the prevention of infection and the dissipation of fear and superstition in regard to this most eminently curable disease. The unflagging energy and zeal with which Lady Reid continued to direct the work of the association in spite of many difficulties and set backs must again be acknowledged with a deep sense of gratitude. Lady Reids' efforts have been strongly reinforced by the advice and active sympathy of His Excellency Sir Robert Reid, Governor of Assam, who has always been ready in times of difficulty to help in finding a solution. The task of organising Tuberculosis work in the districts, which has been placed on the district branches, proceeds slowly. Suitable schemes are in operation in the hill tracts generally. In Lakhimpur district much progress has been made in connection with setting up a clinic in Dibrugarh and it is hoped that a tuberculosis scheme will be in operation during the next year.

In connection with this organising of tuberculosis work in the districts, the example of the Shillong Clinic has always been held up as one to be followed. But it seems to be forgotten by organisers in the districts, that the back-bone of a successful scheme is the voluntary work of local private medical practitioners. One or more of these practitioners should come forward as Honorary medical officers to work regularly in the clinics. If necessary, special training will be arranged for them by the local branches of the Tuberculosis Association, so that they may practice as specialists in Tuberculosis and be of still more value to the clinic. In Shillong for example there are three such honorary medical officers, and it is due to their voluntary work that the work of the clinic has been made possible. There is no reason to think that similar work cannot be done in other places.

CHAPTER XII

URBAN RURAL AND HOUSING CONDITIONS

49. In urban areas housing conditions continued not to be satisfactory. The standard of housing both in towns and villages is far below what would be necessary to make for even moderately healthy living.

In rural areas the conditions become worse during the rainy season, particularly in low-lying areas due to floods. Poverty, ignorance and apathy stand in the way of improvement. There were no building societies or co-operative schemes for the improvement of rural and urban housing during the year under report.

In the Industrial centres, housing conditions are reported to be improving. The tea garden Authorities have initiated measures, for the improvement of housing conditions on their estates, and a series of standardised specifications and plans for houses for their labour is in the course of preparation. Municipal authorities could likewise prepare town development schemes and plants for the relief of congestion.

In rural areas housing conditions remain the same. It is hoped that in the course of the working of a Health Unit Scheme practical suggestions will be made for the improvement of village housing. In rural uplift centres this question has been taken up.

CHAPTER XIII

BUDGET GRANTS FOR THE DEPARTMENT

50. A scheme for the development of the Public Health administration submitted to Government last year is under consideration. The budget allotments for the years 1939-40 and 1940-41 amounted to Rs.866,100 and Rs.980,458 respectively.

The strength of the Public Health Department during the year was as follows :—

1. Director of Public Health	...	...	...	1
2. Assistant Directors of Public Health	...	...	...	2
3. Assistant Surgeons	...	...	...	7
4. Urban Health Officers	...	...	...	9
5. Sub-Assistant Surgeons—				
General duty	...	89	}	121
Epidemic Unit duty	...	21		
Malaria duty	...	9		
In charge, Vaccine Depot	...	1		
Gauhati Emigration Hospital		1		
6. Vaccination inspecting staff—				
Inspector of Vaccination	...	9	}	39
Sub-Inspectors of Vaccination		30		
7. Clerks—				
Office of Director of Public Health		14	}	27
„ A. Ds of Public Health		2		
„ Civil Surgeons		10		
„ Pasteur Institute		1		
8. Bio-Chemist	...	...		1
9. Literate packers—				
in Public Health Laboratory		1	}	2
in Vaccine Depot	...	1		
10. Compounders (temporary)	...	4		4
11. Loaders—				
in Vaccine Depot	...	2		2
12. Disinfectant Carriers—				
Permanent	...	30	}	42
Temporary	...	12		
13. Sample Taker...	...	1		1
14. Laboratory Assistants and Media Makers—				
Public Health Laboratory	...	3	}	16
Vaccine Section Pasteur Institute		5		
Bacteriophage Section Pasteur Institute.		8		
15. Vaccinators appointed by Government in Hill Districts.	43			43
16. Vaccinators appointed and paid by Local Boards.	397			397
Ditto by Municipalities	26			26
Ditto by Development Boards	2			2
17. Magic Lantern Operators temporary	6			6
18. Servants—				
Duftry		1	}	129
Orderlies		3		
Chaprasis		125		

The Shillong Municipal Board employs a fully qualified Health Officer whose salary is met in part by a contribution from Government.

CHAPTER XIV

VACCINATION

This chapter and all statistical tables connected with it refer to the period from April 1st, 1940 to March 31st, 1941. The question of preparing this report for the calendar year instead of the financial year is now under the consideration of Government.

INTRODUCTORY

51. Vaccination was carried on as usual, throughout the province, among a total population of (estimated) 10,165,554.

VACCINATION AGENCIES

52. Among the general population, vaccination was performed by 459 vaccinators, *viz.*, 381 Local Board, 26 Municipal Board, 2 Development Board, 38 Government vaccinators and 12 vaccinators in Manipur State against 469 vaccinators in the year 1939-40. The labour force of the Tea Estates was vaccinated by the Garden Medical Officers. Railway employees were vaccinated by the Railway Medical Officers and in jails vaccination was performed by Sub-Assistant Surgeons in medical charge.

When their services were not required for cholera or other epidemic duty 42 Epidemic Assistants (as the Disinfectant Carriers are now called) of Epidemic Units were also employed, as in the previous year, as vaccinators. The average number of persons vaccinated by each vaccinator, during the year under report, was 1,817 as compared with 2,017 in the previous year. There was a decrease in the average number of persons vaccinated by each vaccinator by 200.

TOTAL NUMBER OF OPERATIONS

53. The total number of vaccination operations performed in the Province during the year 1940-41 by all agencies was 834,046 of which 468,717 were primary and 365,329 re-vaccinations as compared with 945,876 vaccinations of which 471,571 were primary and 474,305 re-vaccinations in the preceding year. There was a decrease of 2,854 in primary vaccinations and 108,976 in re-vaccinations in comparison with the previous year.

Variations in the district returns are criticised in paragraph 60.

The total number of operations performed by different agencies during the year under report and in the previous year is shown below :—

			1940-41	1939-40
Number of operations by—				
Local and Municipal Board and Government Vaccinators			756,296	859,898
Ditto	ditto	by Staffs of dispensaries ...	6,100	11,779
Ditto	ditto	by Tea Garden agencies ...	64,221	64,824
Ditto	ditto	by Jail, Asylum, Police and Emigration Hospital agencies.	4,254	5,584
Ditto	ditto	by Railway agencies ...	3,175	3,791
Ditto	ditto	by Private Medical Practitioners	...	...
			<hr/> 834,046	<hr/> 945,876

There was a decrease of 111,830 operations in the year under report as compared with the previous year. The fall is due to the fact that there was no serious epidemic of small-pox during the year 1940-41.

VACCINATION AMONG THE GENERAL POPULATION

54. The number of operations performed among the general population by Local Board, Municipal and Government Vaccinators during the year under report shows a decrease of 103,602 vaccination operations as compared with the figure of the preceding year.

DEATHS FROM SMALL-POX

55. A total of 932 deaths against 2,334 in the previous year from small-pox, occurred in the province including the Hill districts during the year 1940-41 as shown below :—

Cachar	...	...	...	...	...	...	...	1
Sylhet	...	...	...	...	...	...	...	765
Khasi and Jaintia Hills	...	...	...	...	...	...	...	15
Naga Hills	...	...	...	...	...	...	...	Nil
Lushai Hills	...	...	...	...	...	...	...	Nil
Goalpara	...	...	...	...	...	...	...	9
Kamrup	...	...	...	...	...	...	...	84
Darrang	...	...	...	...	...	...	...	15
Nowgong	...	...	...	...	...	...	...	33
Sibsagar	...	...	...	...	...	...	...	Nil
Lakhimpur	...	...	...	...	...	...	...	9
Garó Hills	...	...	...	...	...	...	...	1
Manipur State	...	...	...	...	...	...	...	Nil
Sadiya Frontier Tract	...	...	...	...	...	...	...	Nil
Balipara Frontier Tract	...	...	...	...	...	...	...	Nil
Total								<hr/> 932

As in the previous year the highest mortality from small-pox was reported from the Sylhet district.

The ratio of deaths from small-pox during the year 1940-41 was 0·09 per mille of population as compared with 0·23 in the year 1939-40. The death-rate reported from small-pox was highest in the district of Sylhet 0·25 against 0·66 in the preceding year. The death-rate reported from Kamrup was 0·08 against 0·12, Nowgong 0·06 against 0·12 in comparison with the preceding year.

The attached chart illustrates the death-rates from small-pox in each district side by side with the proportion protected against the disease by vaccination during the seven years from 1934-35 to 1940-41.

SPECIAL REGULATIONS

56. Vaccination in rural areas in Assam is not compulsory, but every encouragement is given to the people to get themselves vaccinated.

Some opposition to vaccination is met with in certain localities. To overcome this hostile attitude, regulations under the Epidemic Diseases Act, 1897 (III of 1897), are resorted to and these areas are declared to be small-pox infected areas under the Epidemic Diseases Act. During the year under review some villages under the Pashim Borigog, Pubbaska, Betna, Paschim-Bonbhag, Hajo, Ramdia, Boko-Bongaon, Dakhinbarkhetri, Luki-Bekali, Pubchamaria and Dakhin Sarudangoor mouzas of the Gauhati subdivision and Pacca mauza of the Barpeta subdivision of the Kamrup district, and the whole of Goalpara district were declared as small-pox infected areas during the year under report.

DISPENSARY VACCINATION

57. A total of 6,100 vaccination operation was performed by the dispensary staff during the year under report of which 1,644 were primary and 4,456 re-vaccinations as compared with 11,779 operations in the year 1939-40 with 2,694 primary and 9,085 re-vaccinations.

PERCENTAGE OF SUCCESSFUL OPERATIONS

58. The percentage of successful operations performed by all establishments combined was 95·95 for primary vaccination and 58·34 for re-vaccinations as compared with 95·41 and 58·48 respectively, in the year 1939-40. The percentage of successful operations in primary vaccinations and re-vaccinations in case of dispensary staff was 90·42 and 58·26 respectively, as against 94·27 and 50·64 respectively, in the previous year.

During the year under report no complaint as regards the lack of potency of the vaccine lymph was received from any district.

DIFFERENT METHODS OF VACCINATION

59. All vaccinations were performed, as in previous years, with glycerinated calf lymph manufactured in the Provincial Vaccine Depôt, Shillong.

VACCINATION WORK IN DIFFERENT DISTRICTS

60. The following table shows the increase and decrease in vaccination operations performed in individual districts as compared with the preceding year :—

Districts	1940-41	1939-40	Increase	Decrease
Cachar	52,655	47,971	4,684	...
Sylhet	207,330	360,644	...	153,314
Khasi and Jaintia Hills	77,037	49,051	27,986	...
Naga Hills	12,422	18,716	...	6,294
Lushai Hills	11,027	9,919	1,108	...
Goalpara	72,436	78,844	...	6,408
Kamrup	90,015	89,123	892	...
Darrang	72,826	70,149	2,677	...
Nowgong	48,577	51,227	...	2,650
Sibsagar	78,601	62,780	15,821	...
Lakhimpur	58,253	57,026	1,227	...
Garo Hills	18,225	17,681	544	...
Manipur State	26,876	25,946	930	...
Sadiya Frontier Tract	5,638	6,287	...	649
Balipara Frontier Tract	2,128	512	1,616	...
Total	834,046	945,876	...	111,830

The decrease in the Sylhet district is the highest (153,314). The decrease is due to the fact that owing to the outbreak of small-pox in epidemic form specially in Sylhet Sadar subdivision and town the number of vaccinations performed in the previous year was unusually high. The increase in the Khasi and Jaintia Hills district is the highest (27,986).

No vaccination operations were performed by the dispensary staff in the districts of Kamrup, Nowgong and Lakhimpur.

COMPOSITION AND STRENGTH OF THE INSPECTING STAFF

61. The subordinate Inspecting Staff was the same as in the previous years and consisted of 9 Inspectors and 30 Sub-Inspectors of Vaccination. As in the previous years one Inspector and one Sub-Inspector of Vaccination were employed by the Manipur State during the year under report.

VACCINATION IN COMPULSORY AREAS

62. In towns, where the Vaccination Act is compulsory 7,781 infants were born, of these 751 died, leaving 7,030 infants available for vaccination during the year 1940-41. Out of these 3,497 or 49·77 per cent. were successfully vaccinated as compared with 56·19 per cent. of the previous year. In Nalbari town 94·00 per cent. of the available infants were vaccinated. In other towns the percentage of vaccinated children was, Mangaldai 93·62, Maulvi Bazar 91·58, Tinsukia 91·11, Jorhat 78·08, Goalpara 77·92, Palashbari 73·87, Karimganj 66·39, Gauhati 66·11, Shillong 62·96, North Lakhimpur 61·54, Dhubri 60·95, Nowgong 56·99, Silchar 52·51, Nazira 47·13, Gauripur 46·59, Srimangal 43·75, Tezpur 37·76, Sylhet 35·78, Sunamganj 32·65, Golaghat 31·75, Barpeta 28·81, Dibrugarh 27·57, Hailakandi 26·92, Habiganj 19·23, Sibsagar 12·66 and Doom Dooma 10·71.

In compulsory rural areas under village authorities in Sylhet, Nowgong and Sibsagar districts 4,571, 1,099 and 1,964 operations were performed during the year under report as compared with 3,829, 1,008 and 1,625 respectively, in the previous year.

VACCINE DEPOT, SHILLONG

63. The amount of vaccine lymph manufactured in the Vaccine Depot, Shillong, during the year under report was 937,584 tubes against 1,110,290 tubes in the year 1939-40. A total of 921,104 tubes was issued during the year under report against 1,096,208 tubes in the year 1939-40. Each tube contains sufficient vaccine lymph to vaccinate one person. During the year under report 374 cow calves, 13 buffalo calves and 12 rabbits were hired and inoculated, out of these the operation was done on 312 calves for collection of vesicles out of which 36 failed and 8 inoculated calves remained at the close of the year. A total of 84 calves was injected, 36 on account of failure of operations and 48 on account of other illness as compared with 75 on account of failure of operation and 40 on account of illness in the preceding year. During the year under report no calf was injected on account of unsatisfactory vesicles. Twenty-eight calves were used for potency tests of the lymph manufactured during the year under report, against thirty-eight in the preceding year. The success rate of all the batches of lymph tested was 100 per cent. The staff of the depot, performed vaccinations and re-vaccinations at the Vaccine Depot, Shillong, and the results obtained at the Depot were 100 per cent. successful in case of vaccination and 93·20 per cent. in case of re-vaccination.

During the year under report the average number of tubes prepared per calf was 3,498 tubes as compared with 3,385 in the year 1939-40. The average yield per calf was 37·11 grammes during the year 1940-41 against 36·41 grammes in the preceding year. The total cost of working of the Vaccine Depot, Shillong, was Rs.15,579 as compared with Rs.15,056 in the preceding year. Rupees 5,306 was on account of establishment, Rs.3,562 on account of hire of calves, Rs.134 on account of feed of calves, Rs.3,387 on account of purchase of capillary tubes and instruments and Rs.3,190 on account of miscellaneous expenditure.

As usual lymph was supplied free to Civil Surgeons, Inspectors and Sub-Inspectors of Vaccination, Local and Municipal Boards and Sadiya and Balipara Frontier Tracts. The Military Department, Tea Gardens, Railways, Mission Hospitals, Manipur State and private individuals were supplied, as usual, on payment at the rate of one anna per tube.

The subordinate charge of the Vaccine Depot was held by Dr. Sudhiranjan Bhattacharjee throughout the year. His work continues to be of high standard, and many improvements in the management of the depot and the manufacture of lymph have been initiated and carried out by him during the year.

COST OF THE DEPARTMENT

64. The total expenditure including the charges of the Vaccine Depot, Shillong, on vaccination in Assam, during the year 1940-41 was Rs.1,08,966-8-6 as compared with Rs.1,06,961-9-3 in the previous year. The average cost of each successful vaccination during the year 1940-41 was three annas and two pies only as compared with two annas and ten pies only in the previous year.

GENERAL

65. Primary vaccinations and re-vaccinations performed by the dispensary staff numbered 1,644 and 4,456 respectively, by Tea Garden Medical Officers 33,908 and 30,313 respectively, by Medical Officers in charge of Jail Hospitals, Mental Hospitals, Police Hospitals and Infectious Diseases Hospitals 67 and 4,187 respectively and by the Railway Medical Officers 459 and 2,716 respectively. The percentage of successful vaccinations and re-vaccinations were 90·42 and 58·26, 96·24 and 60·33, 76·12 and 61·56 and 98·85 and 36·00 respectively. As in the previous years no vaccination operation was performed by Private Medical Practitioners during the year under report.

CHAPTER XV

OTHER PUBLIC HEALTH SERVICES

66. *Industrial hygiene.*—The principal industry in the province is the cultivation and manufacture of tea. Sanitary conditions on tea estates, on the whole, are satisfactory. Special registrations, under the Emigration Labour Act, 1932, exist in regard to the supervision of sanitary conditions in tea estates. The Indian Factories Act controls sanitation in factories and also offensive trades.

The Assistant Directors of Public Health are Additional Inspectors of Factories within their respective jurisdictions. The Inspector inspected factories to see that the provisions of sections 13 to 21 of the Act are properly observed. The inspection of factories is now more systematically done than before, but more remain to be done in regard to the carrying out of improvements found necessary at these inspections.

67. *Mines*.—During the year under review the Assistant Director of Public Health, Assam Valley Division, inspected the sanitary conditions of four mines. The Civil Surgeons, Lakhimpur and Naga Hills, did not inspect any mines during the year. There is no mine under the jurisdiction of Assistant Director of Public Health, Surma Valley and Hill Division.

68. *Public Analyst (food adulteration)*.—In 1940, a total of 1,380 samples was examined in the Public Health Laboratory against 1,407 in the previous year, as shown in the table below :—

I. Table—General Public Health Analysis

				1940	1939
1. Chemical analysis of water	...	...	...	305	229
2. Chemical analysis of food-stuffs	...	...	...	485	661
3. Chemical miscellaneous examination	...	...	...	1	...
4. Bacteriological examination of water	...	...	...	397	359
5. Bacteriological examination of vaccine lymph	...	...	...	192	158
Total	...	...	...	1,380	1,407

II. Table—Food Analysis

Details of food-stuffs analysed during the year 1940 compared to 1939 :—

Name of food-stuffs					Total examined in 1940	Found adulterated in 1940	Total examined in 1939	Found adulterated in 1939
Milk	...	...	...	...	67	30	175	69
Ghee	...	...	...	...	202	95	231	146
Mustard oil	...	...	...	...	187	105	199	98
Tea	...	...	...	...	3	...	18	2
Rice	...	...	...	...	5	...	5	...
Dal	...	...	...	...	4	...	2	...
Gur	...	...	...	...	2	...	1	...
Moida and Atta	...	...	...	...	10	...	21	2
Butter	...	...	...	...	4	...	4	4
Others	...	...	...	...	1	...	5	1
Total					485	230 47·4 per cent.	661 48·7 per cent.	322

Statement of the working of the Assam Pure Food Act in the Municipalities during the year 1940—contd.

Name of Municipal Board	Number of samples purchased	Number of samples sent for analysis	Number of samples found adulterated	Number of prosecutions instituted	Number of convictions secured for 1st offence	Number of convictions secured for subsequent offences	Amount of fine or imprisonment for each offence (average)	Amount of fine or imprisonment for each offence subsequent (average)	Nature of offence	Total amount of fine realised during 1940	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Hailakandi Town Committee.	1	...	1	...	Rs. a. p. 2 0 0	Rs. a. p. ...	...	Rs. a. p. 2 0 0	Number of samples of milk for sale examined was 25. Number found adulterated was one. Number of person convicted with fine of Rs 2 was one.
Sylhet Municipal Board	...	28	12	56	45	...	9 6 0	...	Adulterated <i>ghee</i> and mustard oil.	916 0 0	Fifty-six prosecutions under 5 and 6 include 44 milk prosecutions under these sections, samples of which were not sent for analysis.
Karinganj Municipal Board.	...	17	11	7	4	...	100 0 0	...	Adulterated <i>ghee</i> , mustard oil, and other food-stuff.	100 0 0	One accused was acquitted after re-examination of his sample elsewhere through the court. Two paid costs and made donations towards the War Fund and the cases were withdrawn. Case pending.
Maulvi Bazar Municipal Board.	...	2	2	1	...	...	...	...	Adulterated <i>ghee</i>	...	
Habiganj Municipal Board.	...	20	2	12	12	...	235 0 0	...	Adulterated milk, butter, <i>ghee</i> , and mustard oil.	235 0 0	Seventy samples were locally examined of these 10 were found adulterated. They were produced before the Magistrate and fined.

Statement of the working of the Assam Pure Food Act in the Municipalities during the year 1940—contd.

Name of Municipal Board	Number of samples purchased	Number of samples sent for analysis	Number of samples found adulterated	Number of prosecutions instituted	Number of convictions secured for 1st offence	Number of convictions secured for subsequent offences	Amount of fine or imprisonment for each first offence (average)	Amount of fine or imprisonment for each subsequent offence (average)	Nature of offence	Total amount of fine realised during 1940	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Sunamganj Municipal Board.	...	2	2	2	2	...	Rs. a. p. 10 0 0	Rs. a. p. ...	Adulterated mustard oil.	Rs. a. P. 10 0 0	Both the persons convicted were warned by the trying Magistrate with a fine of Rs.5 each.
Srimangal Town Committee.	...	...	...	...	...	...	...	...	...	...	The blank returns do not really mean absence of adulterated food-stuff under the Board but indicate indifference on the part of the Board concerned towards implementing the Act, although the necessity in this respect has been impressed upon them from time to time.
Dhubri Municipal Board	...	32	6	8	8	...	200 0 0	...	Adulterated ghee and mustard oil.	200 0 0	Out of 32 samples sent for analysis to Shillong 6 were found to be adulterated and 1 sample of mustard oil was broken during transit. In 6 cases prosecution was launched upon and conviction secured. One case of ghee was produced before the Magistrate and destroyed by his order. One case of ghee, and another case of milk were produced before the Magistrate who convicted and sentenced them to fine.

Statement of the working of the Assam Pure Food Act in the Municipalities during the year 1940—concl'd.

Name of Municipal Board	Number of samples purchased	Number of samples sent for analysis	Number of samples found adulterated	Number of prosecutions instituted	Number of convictions secured for 1st offence	Number of convictions secured for subsequent offences	Amount of fine or imprisonment for each first offence (average)	Amount of fine or imprisonment for each subsequent offence (average)	Nature of offence	Total amount of fine realised during 1940	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Mangaldai Town Committee.	...	1	...	...	1	...	Rs. a. p. 30 0 0	...	Adulterated <i>ghee</i>	Rs. a. p. 30 0 0	There was a little room for adulterated food articles being sold on account of constant and strict supervision over the sale of food-stuffs. Fine imposed appear to be adequate.
Nowgong Municipal Board	...	11	...	3	...	...	...	...	...	...
Sibsagar Municipal Board	...	3	2	2	...	...	...	...	...	...
Golaghat Municipal Board	...	1	6	5	...	...	140 0 0	...	Adulterated <i>ghee</i> and mustard oil.	140 0 0	
Jorhat Municipal Board...	...	8	4	6	6	...	60 0 0	...	Adulterated mustard oil.	60 0 0	
Nazira Town Committee	No action under the Act was taken by the Committee.
Dibrugarh Municipal Board.	...	49	21	21	6	...	110 0 0	...	Adulterated milk, <i>ghee</i> and mustard oil.	110 0 0	
Tinsukia Municipal Board	...	4	...	...	...	...	...	...	...	...
Doom Dooma Town Committee.	
North Lakhimpur Town Committee.	3	3	3	...	11 0 0	...	...	11 0 0	
Shillong Municipal Board	...	87	36	36	25	...	250 0 0	...	...	250 0 0	Eleven persons (servants) have been discharged by the owners and could not be subsequently traced and cases against them had to be struck off. It is regretted that nothing has yet been done to impose the Act in the Siem area.

Statement of the working of the Assam Pure Food Act in the Local Board during the year 1940---contd.

Name of Local Board	Number of samples purchased	Number of samples sent for analysis	Number of samples found adulterated	Number of prosecutions instituted	Number of convictions secured for 1st offence	Number of convictions secured for subsequent offences	Amount of fine or imprisonment for each first offence (average)	Amount of fine or imprisonment for each subsequent offence (average)	Nature of offence	Total amount of fine realised during 1940	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Sibsagar Local Board	1	1	1	1	...	Rs. a. p. 20 0 0	...	Adulterated ghee	20 0 0	One man was prosecuted under section 18 of Assam Pure Food Act selling adulterated ghee in 1940, but convicted in 1941 by a fine of Rs.20. The article seized has been destroyed under order of Magistrate.
Golaghat Local Board	3	2	2	...	...	...	...	...	...	} The blank returns do not really mean absence of adulterated food-stuff under the Boards but indicate indifference on the part of the Boards concerned towards implementing the Act, although the necessity in this respect has been impressed upon them from time to time. In any case, a more frequent and vigorous use of the Act is highly desirable in the interest of the Public Health.
Dibrugarh Local Board	
North Lakhimpur Local Board.	3	3	3	...	11 0 0	...	...	11 0 0	
Habiganj Local Board	
Karinganij Local Board...	
Jorhat Local Board	5	3	3	1	...	70 0 0	...	Adulterated ghee and mustard oil.	70 0 0	

Chemical Analysis of water.—Three hundred and five samples of water were analysed during the year under report. Many of these samples were received from wells, trial borings and tube-wells of the local board areas which were under construction from the Central Rural Uplift Fund. All the jail waters were also analysed periodically with the exception of Gauhati and Shillong jails.

Bacteriological Analysis of water.—Three hundred and ninety-seven samples for bacteriological analysis were collected and analysed in the year.

Chlorination was carried out in all Municipal waterworks, except in Shillong. Shillong water was collected on 18 occasions and was found to maintain its high standard of purity throughout the whole year, except on three occasions when the deterioration was considered to be local and due to defects in the pipelines. Silchar, Sylhet, Haflong, Jorhat, Tezpur, Gauhati and Dhubri waters were collected several times and analysed in the year. Haflong, Jorhat, Tezpur waters showed signs of contamination which was presumed to be due to faulty filtration or ineffective chlorination. Sylhet, Silchar, Gauhati and Dhubri waters were found to be good throughout the whole year. Samples of water from other municipal areas, Tea Gardens and Excise warehouses were also analysed bacteriologically and most of them were found unsatisfactory and suitable recommendations were made.

Bacteriological examination of vaccine lymph.—One hundred and ninety-two samples of vaccine ymphae were examined and were found to be free from dangerous organisms.

Food-stuffs.—Four hundred and eighty-five samples were analysed. Of this number two hundred and thirty samples were found adulterated as detailed in the list above.

Most of the Local Boards and many of the municipalities did not take adequate steps under the Assam Pure Food Act to prevent the sale of adulterated food-stuff.

The case of Shillong municipality needs special mention. In the preceding year (1939) they sent 87 samples of food-stuff for analysis whereas in 1940 they sent none though this is the capital of the province.

The Assam Pure Food Act is fairly comprehensive and if the people in authority, *i.e.*, the municipality and the local board take adequate steps, then the sale of adulterated food-stuffs can be minimised to a great extent. There are Health Officers and Sanitary Inspectors in most of the municipalities and there are also many authorised persons under the local board including the Local Board Epidemic Medical Officer and so I do not think there is any inadequacy of staff. Moreover, the fee for examination is only Rs.2 per sample which is the irreducible minimum. This is also the lowest fee compared to those in force in other provinces in India. The only thing lacking is initiative and the will to work the Act. Local authorities have already been requested to many times for more active co-operation, but without any appreciable result. I think the time has now come for some compulsory powers to be assumed by Government and it is suggested that the local authorities should be bound by rules to send samples of food-stuffs to a minimum annual total as follows:—

						Minimum annual samples
District Head quarter municipalities	...	...	...	...	...	100
Subdivisional municipalities	...	...	...	...	...	50
Town Committees	...	...	...	...	...	25
Local Boards...	...	...	...	...	...	100

Miscellaneous work.—The laboratory also worked as a depot for the supply of Urea Stibamine, Neostibosan and spare parts of syringes to all the dispensaries and hospitals in the province. The total number of parcels despatched were 1370 containing Urea Stibamine, Neostibosan and spare parts of syringes.

Research work.—An enquiry into the Detection of Adulteration was continued upto the end of March, 1940 in the Public Health Laboratory and this was financed by the Indian Research Fund Association. Investigations on the adulteration of milk was undertaken and valuable observations were made regarding the constituents of milk of cow and also of buffalo of known breed especially the lactose content. Estimation of lactose for which a rapid method has been worked out in this laboratory shows that lactose content of cow milk varies from 3.9 per cent. to 5.23 per cent. whereas that of buffalo milk varies from 4.18 per cent. to 5.53 per cent. It is expected that estimation of lactose will help the detection of adulterated buffalo milk passed as cow milk.

Two papers have been published from this laboratory *e.g.*

“On the Estimation of lactose in milk” by Rai Sahib Dr. N. K. Ghosh and Mr. B. K. Datta Roy.—Ind. Jour. Med. Res. 27, 4th April 1940.

“On the Composition of buffalo milk and the Detection of Adulterated samples passed as cow milk” by Rai Sahib Dr. N. K. Ghosh and Mr. B. K. Datta Roy.—I.M.G. May, 1941.

69. *Port Health Administration.*—Nil.

70. *Sanitary Works.*—This is dealt with in Chapter VI, under heading “Urban Sanitation”.

71. *Public Health Board.*—There was no meeting of the Public Health Board during the year 1940. The Health Board (Epidemics) functioned as in previous years.

CHAPTER XVI

GENERAL REMARKS

72. *Research work.*—The research work in the province is entrusted to the Assam Medical Research Society. The Society receives an annual contribution of Rs.20,000 from the Government of Assam. The Director of Public Health, Assam, is an *ex-officio* member of the Governing Body. The activities of the Society are concerned with malaria, cholera and dysentery and lately confined to work on malaria. As in the previous years, surveys of malarious areas were undertaken during the year under review. The work of the Society in regard to malaria is mentioned in Chapter VIII of the report.

73. *Leper Asylum and Colonies*.—The table below gives the details of the patients treated in the existing leper institutions in the province :—

	Remain- ing from the previous year	Admis- sions during the year	Total	Dis- charged, cured or relieved	Dis- charged other- wise	Died	Remain- ing at the end of the year
1	2	3	4	5	6	7	8
Leper Asylum, Sylhet ...	73	36	109	9	17	11	72
Leper Hospital, Kohima ...	21	7	28	2	3	3	20
Leper Ward, Dhubri ...	11	11	22	4	11	...	7
Leper Asylum, Gauhati ...	16	31	47	18	3	3	23
Leper Colony, Tura ...	95	28	123	...	18	2	103
Leper Asylum, Barpeta ...	13	12	25	...	5	...	20

The treatment is available in outpatients clinics at all sadar and subdivisional headquarters hospitals and at many of the outlying Public Health Department and Local Board dispensaries. The Mission Leper Colony at Jorhat treated 116 lepers during the year.

74. *Famine*.—No remarks.

75. *Public Health Acts*.—No Public Health Act was passed during the year.

76. *Public Health Essays*.—The Secretary, Assam Red Cross Society, did not submit any scheme for holding essay and poster competitions in Public Health.

77. *Bacteriophage*.—The Pasteur Institute and Medical Research Institute, Shillong, issued 273,944 doses of bacteriophage during the year 1940 as compared with 214,704 doses in 1939.

78. *Office*.—The office continued to work satisfactorily under many difficulties. The office is under-staffed and urgently needs an increase in the staff, when a better arrangement making for rapid work and efficiency, will become possible. The increase in the staff is under consideration of the Government. The office also is very crowded and anything but what an establishment of the Public Health Department should be. The clerks have not enough space to work in, there is no adequate room for housing records satisfactorily. There is urgent need for new accommodation to be provided. It is hoped that an extension of the building will be carried out in the next year.

79. *Personal proceedings*.—I held charge of the Department throughout the year while the posts of Assistant Directors of Public Health, Surma Valley and Hill Division and Assam Valley Division were held by DR. S. H. PAUL, L.R.C.P., M.R.C.S., D.P.H., D.T.M., and DR. S. C. DUTT, M.B., D.P.H., respectively throughout the year.

This is probably the last report on the working of the Public Health Department in Assam that I shall have the privilege to write, and it may be useful to sum up what has been accomplished in the past few years.

The most important requirement of the Department is that it should be staffed by adequately qualified and trained men. This has at length been secured in substance although the official pronouncement of such a policy has not been made. Prior to 1936, the so-called Public Health Department was a recruiting agency for the medical department. Assistant Surgeons and Sub-Assistant Surgeons were first taken into the Public Health Department on a temporary basis and later drafted into the medical Department as vacancies in that department arose. In 1936, a change was made in this unsatisfactory method of maintaining the Public Health staff, and since then recruitment has been made definitely for the Public Health Department, and the members of the staff in service then were given the option of remaining in the Public Health Department or of being absorbed into the medical Department. Of the Assistant Surgeon only two elected to remain and the other four have been absorbed into the Medical Department. Advantage was taken of the occasion and the developments that followed the absorption of these Assistant Surgeons into the Medical Department to press for the recruitment of only suitably qualified men for the Public Health Department, and after many vicissitudes, this has been accomplished in practice to a very satisfactory degree and at the end of 1940 out of seven Assistant Surgeons in the Department two possess the Public Health Diploma, the existence still of Assistant Surgeons in the department without a Public Health Diploma is due to war conditions and the drafting of certain Assistant Surgeons to military service. This is very satisfactory but as no definite official pronouncement of this policy has yet been made, and the old rules of recruitment have not been altered to suit the changing conditions, the Assistant Surgeons and Sub-Assistant Surgeons continue to be in a state of uncertainty as to their prospects in the Department, and there is still a tendency among the new recruits to seek transfer to the Medical Department, as if the former conditions still obtained. This feeling, I think, has largely died down now, mainly. I consider, on account of the practice that has arisen of appointing men with Public Health qualifications and the submission to Government of my scheme for the re-organisation of the Department, which not only connote better prospects, but will lead to the formation of a real Public Health Department within which all aspirations may be satisfied. There is, of course, some difficulty in obtaining qualified men, but if it were definitely known that only men qualified and trained in Public Health would be appointed, prospective candidates for appointment would obtain the requisite qualifications.

In connection with epidemics of cholera, I believe, the department is on the right lines. Reporting of outbreaks now have become commendably prompt, and late reporting has become a rare occurrence. The people in the villages are now becoming increasingly knowledgeable regarding the disease and the precautions to be taken for its control, but in the absence of a

permanent organisation and of a systematic and persistent campaign, diffusion of essential knowledge is bound to be slow. Propaganda on public health, hygiene and rural sanitation now, perforce, has to follow the epidemic, this being the occasion when staff becomes available. It is not carried out for its own sake, as it should be, and can only be when there is in the office of the Director of Public Health a whole time qualified and trained Health Officer for propaganda and there is in the villages a whole time Public Health staff, with Health officers not Assistant Surgeons' Public Health Department in the Districts and Sub-Divisions. All this is provided for in the reorganisation scheme now under the consideration of the Government. The chief active measure of prevention and control of cholera is now the prompt and systematic protection of the people by inoculation of anti-cholera vaccine. While it is not possible to protect the people in areas liable to outbreaks, before the outbreaks do occur, it is possible to smother the spread of infection by setting up an immunised population all around the focus of infection. This is being done with increasing thoroughness, 80 per cent. to 100 per cent. of the people in infected villages and in the surrounding villages to which infection is likely to spread, have been protected in this way. It is of course impossible to say whether this procedure is responsible for the great freedom from serious outbreaks which the province has been enjoying recently, because of the Natural variations in the incidence of cholera. The behaviour of cholera in Assam has not yet been adequately studied to determine the results of any preventive measure taken. The appointment of a statistician in the coming year, will provide the means for taking up this kind of study, without which Public Health practice becomes empirical, and ineffective, and cannot produce permanent results.

While the Government have not yet been able to make any pronouncement in regard to the re-organisation scheme submitted to them, it is clear that the Government view it with favour, as they have made a permanent addition to the staff of the Assistant Surgeons in the Public Health Department and have appointed a well qualified man in the post. Seven out of the eight districts of this province have now a public health Assistant Surgeon, who will later become the District Health Officer, provided he has the requisite Public Health qualification as most of them now have. As a further stage in the practical introduction of the reorganisation scheme, a malaria survey combined with a survey of Public Health conditions has been sanctioned for Cachar District and will be in operation during the coming year. As regular Public Health Organisations have been, in many places built up around some important health problem, *e. g.*, out of an ankylostomiasis campaign, so in Assam it is hoped to build up and develop the Public Health Department around the malaria problem, with its consequent attention to Rural sanitation. This in its turn cannot fail to have a decided influence for the better on the outbreak of epidemic diseases such as cholera, Kala-azar and small-pox.

As another indication of the awakening to the importance of making Public Health a more active and personal matter in the province, is the sanction which the Government have accorded to the setting up of a Health Unit in the Golaghat Sub-division. Here a selected area comprising 60 villages between Dergaon and Golaghat will be the scene of concentrated Public Health work which will go into the very homes of every village and reach every individual of the 40,000 or so persons who reside in the area. Valuable information will be derived and important practical applications of rural sanitation work will emerge from it, which when translated in terms of conditions prevailing in other parts of the province, cannot but have a profound influence for good on the general advance of the Public Health of Assam. The Health Unit will be begun during the next year.

A working plan for the better control of malaria in Assam has been worked out with the active co-operation of the Assam Medical Research Society and the first fruits of this will be seen in the work of reorganisation that will be initiated in Cachar during the coming year.

In regard to water supply, much progress cannot be reported, this is due to the really tremendous nature of the problem and very large cost that is involved and the need therefore to attack the problem as the occasion arises for making improvements. Notwithstanding this, a fair amount of progress has been made in the utilisation of the funds placed at the disposal of the Deputy Commissioners for the improvement of rural water supplies. Wells and tanks have been more or less systematically provided in places where such were needed. The results have been satisfactory and will be a real contribution to the improvement of village health prospects.

A special Leprosy officer has been appointed, and thereby the Public Health Department have taken over a definite responsibility in regard to the prevention of the spread of leprosy. The aim of the Department will be to devise ways by which the infective leper may be prevented from spreading infection, for which purpose something more than treatment centres will be required *viz.* Segregation of all lepers in occupational and asylum colonies, so that the source of infection may be stopped. With this object in view, the special Leprosy officer is now engaged on a survey throughout the province to devise a scheme for the better organisation of the prevention of the spread of leprosy. The question of the opening of suitable occupational colonies and the development of existing institutions on the same line is being examined and in due course proposals will be put up to the Government for their consideration.

During the time that I have held the post of Director of Public Health in Assam, a certain amount of progress has been made, preparations have been made and the foundations laid for much greater progress in the near future. It is my very great regret that I will not have the privilege of seeing these preparations completed or the superstructure rise on the foundations laid. These I leave as a legacy to my successor with the remark that I would have been grateful had I such a prospect before me when I took up my duties here a little over three years ago. The department has travelled a little way down the road to the establishment of better health condition in the province and can see some way further down the road. I trust that I have not tried to press on too confidently, but have done something to open the path to be Pursued, which I am sure will lead to that amelioration of village life in Assam which is very urgently necessary.

A. M. V. HESTERLOW,

SHILLONG :

*Lieut.-Colonel, I.M.S.,
Director of Public Health, Assam.*

The 23rd July 1941.

IMPERIAL STATEMENT No. I.—Statement showing the births registered in the districts of Assam during the year 1940

No.	Districts	Estimated population			Grand total number of births registered			Ratio of births per 1,000 of population			Number of males born to every 100 females born	Mean ratio of births per 1,000 during the previous five years		
		Male	Female	Total	Male	Female	Total	Male	Female	Total		Male	Female	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	SURMA VALLEY													
1	Cachar ...	317,427	283,227	600,654	10,055	9,407	19,462	16.74	15.66	32.40	107	16.63	15.72	32.35
2	Sylhet ...	1,560,385	1,459,871	3,020,256	50,042	45,535	95,577	16.57	15.08	31.65	110	16.04	14.84	30.88
	Total ...	1,877,812	1,743,008	3,620,910	60,097	54,942	115,039	16.60	15.17	31.77	109	16.14	14.99	31.13
	ASSAM VALLEY													
3	Goalpara ...	503,757	452,919	956,676	15,837	14,353	30,190	16.55	15.00	31.55	110	16.37	15.25	31.62
4	Kamrup ...	548,345	496,346	1,044,691	9,447	8,898	18,345	9.04	8.52	17.56	106	10.18	9.39	19.57
5	Darrang ...	338,249	294,291	632,540	9,916	9,322	19,238	15.67	14.74	30.41	107	14.50	14.00	28.50
6	Nowgong ...	317,883	278,715	596,598	6,204	5,648	11,852	10.40	9.47	19.87	110	9.57	9.04	18.61
7	Sibsagar ...	540,103	478,677	1,018,780	13,662	13,025	26,687	13.41	12.78	26.19	105	13.47	12.67	26.14
8	Lakhimpur ...	429,503	355,744	785,247	11,683	11,120	22,803	14.88	14.16	29.04	105	14.52	13.92	28.42
	Total ...	2,677,840	2,356,692	5,034,532	66,749	62,366	129,115	13.25	12.40	25.65	107	13.17	12.41	25.58
	Total for the province.	4,555,652	4,099,790	8,655,442	126,846	117,308	244,154	14.66	13.55	28.21	108	14.41	13.49	27.90

IMPERIAL STATEMENT No. II.—Statement showing the deaths registered in the districts of Assam during the year 1940

No.	Districts	Area in square miles	Average population per square mile	Number of deaths registered			Deaths per 1,000 of population from—										Mean ratio of deaths per 1,000 during the previous five years			
				Male	Female	Total	Cholera	Small-pox	Plague	Fever	Dysentery and diarrhoea	Respiratory diseases	Injuries	All other causes	All causes					
															Male	Female				Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
SURMA VALLEY																				
1	Cachar	1,972	273	6,258	6,155	12,413	0.74	0.002	...	9.96	1.92	1.45	0.19	6.40	19.71	21.73	20.67	20.34	22.62	21.41
2	Sylhet ...	5,478	497	31,658	28,399	60,057	0.65	0.41	...	11.05	0.99	0.44	0.25	6.09	20.29	19.45	19.88	22.26	21.89	22.08
	Total	7,450	438	37,916	34,554	72,470	0.67	.34	...	10.87	1.15	0.61	0.24	6.14	20.19	19.82	20.01	21.34	22.00	21.97
ASSAM VALLEY																				
3	Goalpara	3,985	222	10,226	8,447	18,673	0.01	0.01	...	18.42	0.15	0.20	0.15	0.59	20.30	18.65	19.51	23.38	22.77	23.10
4	Kamrup	3,844	254	4,972	4,416	9,388	0.15	0.09	...	6.96	0.31	0.18	0.11	1.19	9.07	8.90	8.99	12.41	12.73	12.56
5	Darrang	2,842	206	6,350	5,879	12,229	0.02	0.03	...	12.08	1.49	0.54	0.31	4.36	18.77	19.98	19.33	19.35	21.29	20.21
6	Nowgong	3,896	144	3,853	3,477	7,330	0.35	0.04	...	9.39	0.73	0.25	0.15	1.37	12.12	12.48	12.29	12.35	13.03	12.66
7	Sibsagar	5,131	182	8,024	7,621	15,645	0.003	...	...	8.69	1.61	0.95	0.18	3.93	14.86	15.92	15.36	16.75	17.84	17.26
8	Lakhimpur	4,234	171	6,813	6,316	13,129	0.02	0.01	...	9.32	1.69	1.31	0.25	4.12	15.36	17.75	16.72	19.06	21.83	20.32
	Total	23,932	195	40,238	36,156	76,394	0.08	0.03	...	10.78	0.95	0.57	0.18	2.56	15.03	15.34	15.15	17.29	18.16	17.70
	Total for the province.	31,382	253	78,154	70,710	148,864	0.32	0.16	...	10.82	1.04	0.59	0.21	4.06	17.16	17.25	17.20	19.26	19.77	19.49

IMPERIAL STATEMENT NO. III.—Deaths registered in the districts of Assam during each month of the year 1940

No.	Districts	Estimated Population	January	February	March	April	May	June	July	August	September	October	November	December	Total deaths registered during the year 1940
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Cachar	Surma Valley Urban Rural	22	20	19	19	25	17	18	18	25	36	35	26	280
			1,176	895	906	904	1,125	1,009	1,010	1,011	906	1,072	1,009	1,110	12,133
			1,198	915	925	923	1,150	1,026	1,028	1,029	931	1,108	1,044	1,136	12,413
2	Sylhet..	51,878 2,968,378	102	77	63	35	50	55	65	67	63	61	91	67	796
			6,493	5,832	4,827	4,330	4,939	4,160	4,395	3,938	4,183	4,411	5,768	5,985	59,261
			6,595	5,909	4,890	4,365	4,989	4,215	4,460	4,005	4,246	4,472	5,859	6,052	60,057
3	Goalpara	24,360 932,316	45	36	32	26	31	28	48	50	37	32	25	35	425
			1,508	1,619	1,282	1,507	1,595	1,541	1,534	1,558	1,531	1,540	1,409	1,624	18,248
			1,553	1,655	1,314	1,533	1,626	1,569	1,582	1,608	1,568	1,572	1,434	1,659	18,673
4	Kamrup	49,970 994,721	69	61	50	45	68	62	41	55	73	53	77	41	695
			625	702	542	796	982	933	730	719	492	690	763	719	8,693
			694	763	592	841	1,050	995	771	774	565	743	840	760	9,388
5	Darrang	12,567 619,973	27	21	18	16	20	20	14	19	28	19	17	20	239
			744	842	989	1,150	1,476	764	1,125	948	1,111	965	905	971	11,990
			771	863	1,007	1,166	1,496	784	1,139	967	1,139	984	922	991	12,229
6	Nowgong	11,959 584,639	24	10	16	14	20	22	19	23	13	8	7	13	189
			371	464	553	666	618	679	744	642	582	592	499	731	7,141
			395	474	569	680	638	701	763	665	595	600	506	744	7,330
7	Sibsagar	25,792 992,988	44	34	32	26	42	46	38	56	37	24	55	44	478
			1,425	1,232	1,169	1,113	1,282	1,459	1,375	1,375	1,203	1,158	1,335	1,041	15,167
			1,469	1,266	1,201	1,139	1,324	1,505	1,413	1,431	1,240	1,182	1,390	1,085	15,645
8	Lakhimpur	29,653 755,594	29	36	30	37	35	40	51	43	36	43	49	41	470
			921	923	907	941	1,082	1,201	1,238	1,034	1,117	1,138	1,182	975	12,659
			950	959	937	978	1,117	1,241	1,289	1,077	1,153	1,181	1,231	1,016	13,129
Total for the towns ..		223,793	362	295	260	218	291	290	294	331	312	276	356	287	3,572
Ratio per mille for towns ..		..	19.68	16.04	14.14	11.85	15.82	15.77	15.98	17.10	16.96	15.00	19.35	15.60	15.96
Total for rural circles ..		8,431,649	13,263	12,509	11,175	11,407	13,099	11,746	12,151	11,225	1	11,566	12,870	13,156	145,292
Ratio per mille of population		..	19.14	18.05	16.13	16.46	18.91	16.95	17.53	16.20	16.05	16.69	18.57	18.98	17.23
Total for the province ..		8,655,442	13,625	12,804	11,435	11,625	13,390	12,036	12,445	11,556	11,437	11,842	13,226	13,443	148,864
Ratio per mille for the province ..		..	19.15	18.00	16.07	16.34	18.82	16.92	17.49	16.24	16.08	16.65	18.59	18.90	17.20

Ratios have been calculated with reference to number of days in each month. This table includes municipalities and small towns in which registration of vital statistics is compulsory.

IMPERIAL STATEMENT No. IV

IMPERIAL STATEMENT No. IV.—Deaths registered according to age in the districts of (rural circles) and towns of Assam during the year 1940

No.	A.—RURAL CIRCLES	Under 1 year												Total		1 and under 5 years		5 and under 10 years		10 and under 15 years		15 and under 20 years		20 and under 30 years		30 and under 40 years		40 and under 50 years		50 and under 60 years		60 and upwards		Total of all ages			
		Not exceeding 1 month						Over 1 month and not exceeding 6 months																													
		Male						Female						Male		Female		Male		Female		Male		Female		Male		Female									
		Under one week			Over one week			Under one week			Over one week			Total		Male		Female		Total		Male		Female		Total		Male		Female							
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female						
1	2																																				
1	Cachar ..	479	306	785	403	276	679	1,464	456	362	818	241	233	474	1,482	1,274	2,756	1,037	996	318	321	189	125	149	293	449	902	531	570	443	330	435	271	1,061	957	6,094	6,039
2	Sylhet ..	2,840	1,971	4,811	2,317	1,452	3,769	8,580	2,733	2,150	4,878	960	929	1,889	8,499	6,848	15,347	4,107	3,681	1,750	1,484	1,040	814	1,070	1,560	2,451	3,929	2,609	2,518	2,595	1,741	2,435	1,906	4,668	3,556	31,224	28,037
3	Goalpara ..	459	387	846	394	301	695	1,541	906	772	1,678	545	479	1,024	2,297	1,916	4,243	1,270	1,222	760	603	419	454	577	906	1,009	972	995	796	586	520	837	967	603	9,967	8,281	
4	Kamrup ..	291	192	483	260	133	393	876	374	361	735	225	211	436	1,082	965	2,047	886	797	374	305	186	118	152	189	316	451	356	360	402	291	403	277	475	308	4,632	4,061
5	Darrang ..	348	267	615	311	277	588	1,203	539	481	1,020	335	322	657	1,489	1,391	2,880	835	658	436	400	358	315	338	411	495	696	559	559	613	474	542	379	582	462	6,191	5,799
6	Nowgong ..	112	137	249	89	106	195	444	302	261	563	173	183	356	724	639	1,363	655	626	291	277	139	147	151	202	314	426	332	357	373	258	355	235	394	246	3,728	3,413
7	Sibsagar ..	447	333	780	376	259	635	1,415	502	426	928	304	288	592	1,586	1,349	2,935	1,093	1,040	622	568	471	471	488	570	633	907	732	748	671	588	655	571	788	616	7,739	7,428
8	Lakhimpur ..	203	291	494	176	251	427	921	470	391	861	274	236	510	1,238	1,054	22,92	1,208	1,183	491	427	302	291	321	352	500	841	608	591	574	427	561	466	694	525	6,497	6,162
	Total for rural circles.	..	..	..	..	..	..	..	..	..	..	..	..	..	18,397	15,466	33,863	11,091	10,208	5,042	4,385	3,194	2,700	3,123	4,154	6,064	9,161	6,722	6,553	6,587	4,695	6,223	4,625	9,629	7,273	76,072	69,220
	Ratio per mille ..	..	..	..	..	..	..	..	..	..	..	..	..	..	149.29	135.64	142.73	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

B.—TOWNS																																			
Surma Valley																																			
1	Silchar	8	..	8	..	2	2	10	7	4	11	3	3	3	17	3	3	7	1	6	5	16	18	12	12	2	15	7	19	10	123	84			
2	Hailakandi	4	1	5	1	2	3	8	..	2	2	..	2	2	3	3	..	1	..	1	1	4	1	1	1	1	2	8	2	3	4	25	22		
3	Haflong	2	1	3	..	1	1	4	..	..	..	..	..	..	2	1	..	1	1	..	1	4	2	1	..	1	1	..	5	2	16	10	
4	Sylhet	16	4	20	13	6	19	39	25	20	45	8	4	12	20	9	8	4	3	8	8	16	34	15	7	19	8	18	10	28	32	198	73		
5	Maulvibazar	..	..	..	2	1	3	3	1	2	3	..	1	1	7	6	4	..	1	1	1	2	1	..	1	3	..	2	1	6	5	25	21
6	Karimganj	2	2	4	2	2	4	8	7	6	13	1	2	3	24	7	2	4	3	1	..	5	5	10	3	2	10	1	6	4	8	3	58	40	
7	Habiganj	4	3	7	3	3	6	13	8	3	11	6	2	8	32	11	3	2	2	1	3	6	5	7	10	9	5	7	7	15	9	82	70		
8	Sunamganj	3	5	8	3	2	5	13	5	4	9	4	1	5	27	7	16	1	2	1	3	3	7	6	2	5	..	5	1	6	7	52	48		
9	Srimangal	2	..	2	..	..	..	2	2	..	2	..	..	..	4	1	2	1	..	..	2	2	3	3	..	3	1	1	4	2	19	10	
Assam Valley																																			
1	Dhubri	11	6	17	11	2	13	30	11	4	15	7	5	12	57	5	4	2	3	3	5	4	15	5	16	8	9	4	10	3	13	9	113	62	
2	Goalpara	6	3	9	9	1	10	19	6	2	8	2	7	9	36	8	5	4	2	5	3	7	6	12	8	8	2	10	2	7	10	83	59		
3	Gauripur	14	..	14	11	3	14	28	3	1	4	2	1	3	35	8	4	5	2	4	3	4	4	7	6	3	5	2	3	6	4	63	45		
4	Gauhati	4	16	20	3	13	16	36	11	10	21	4	5	9	66	13	11	3	7	3	8	5	12	24	19	11	17	6	12	18	13	140	135		
5	Barpeta	6	9	15	5	6	11	26	12	16	28	5	4	9	63	23	34	13	22	7	10	9	15	12	14	18	11	10	16	24	26	158	189		
6	Palasbari	..	3	3	2	4	6	9	2	2	4	1	..	1	14	4	4	2	1	1	1	3	1	..	3	2	..	1	2	1	2	20	23		
7	Nalbari	4	3	7	..	..	..	7	..	..	..	1	1	2	9	1	1	2	2	..	1	1	..	..	2	1	2	..	4	1	..	22	8
8	Tezpur	6	2	8	6	3	9	17	6	4	10	6	..	6	33	8	7	4	1	2	4	3	23	13	28	5	33	5	10	3	17	7	148	67	
9	Mangaldai	2	1	3	1	1	2	5	..	1	1	..	1	1	7	1	3	2	2	5	1	3	11	13	11	13	
10	Nowgong	5	1	6	3	2	5	11	13	15	28	4	5	9	48	15	9	6	4	5	2	8	3	9	5	18	4	24	4	6	4	11	4	125	64
11	Jorhat	5	2	7	3	1	4	11	3	6	9	7	6	13	33	6	3	2	1	3	..	3	9	14	13	11	9	11	6	16	2	17	11	100	70
12	Sibsagar	4	..	4	4	2	6	10	1	1	2	3	..	3	15	8	6	4	..	2	1	2	9	3	1	7	1	9	3	11	2	57	31		
13	Nazira	2	..	2	3	..	3	5	1	4	5	..	2	2	12	3	2	..	1	1	..	2	2	2	3	1	1	..	2	3	13	20	20	31	
14	Golaghat	2	..	2	1	..	1	3	3	..	3	2	..	2	8	7	7	13	8	10	8	9	8	24	16	14	12	20	9	6	2	9	1	115	72
15	Dibrugarh	6	8	14	7	5	12	26	12	9	21	5	4	9	56	16	13	10	7	9	4	11	6	44	22	49	10	39	12	29	5	22	8	260	112
16	Tinsukia	..	1	1	1	4	4	5	5	1	6	1	1	2	13	3	4	2	1	2	1	3	1	3	1	2	3	6	1	..	..	25	20
17	Doom Dooma	..	1	1	2	..	2	3	1	1	2	5	1	1	2	3	..	2	3	..	1	9	9	9	9	
18	North Lakhimpur	1	1	2	1	1	2	4	4	2	..	1	2	1	..	1	..	1	7	2	2	1	4	4	2	22	13	13	
Total for the towns.		747	204	191	95	78	79	53	88	108	241	224	263	134	256	88	195	98	252	178	2,082	1,490
Ratio per mille	108.25
Total for the province.		34,610	11,295	10,399	5,137	4,463	3,273	2,753	3,211	4,262	6,305	9,385	6,985	6,687	6,843	4,783	6,418	4,723	9,881	7,451	78,154	70,710
Ratio per mille	141.75	21.16	20.82	8.46	7.90	6.24	6.06	8.87	7.96	12.32	10.33	11.21	14.22	12.01	19.77	20.85	54.15	7.17	17.16	17.25	

STATEMENT No. IV(a)—showing mortality under one year by classes

Districts	Hindus		Muhammadans		Christians		Buddhists		Other classes	
	Number	Ratio per 1,000 births	Number	Ratio per 1,000 births	Number	Ratio per 1,000 births	Number	Ratio per 1,000 births	Number	Ratio per 1,000 births
Cachar	1,460	75.02	1,332	68.45	5	..	...	...	2	10
Sylhet	5,571	58.29	9,920	103.79	...	...	...	...	46	48
Goalpara	1,953	64.69	1,778	58.89	68	...	...	...	572	18.95
Kamrup	1,869	101.89	210	11.45	1	...	...	...	119	6.89
Darrang	2,520	131.00	197	10.24	81	...	...	...	122	6.34
Nowgong	965	81.42	313	26.41	21	...	...	...	112	9.45
Sibsagar	2,827	105.93	45	1.69	3	...	7	.26	121	4.53
Lakhimpur	1,902	83.41	47	2.06	94	...	3	.13	324	14.21
Total	19,067	78.09	13,842	56.69	273	1.12	10	.04	1,418	5.81

Separate figures for Indian Christians are not available.

IMPERIAL STATEMENT No. VI.—Deaths registered from different causes in the districts and towns of Assam during the year 1940

No.	Districts and towns	Births		Estimated Population	Deaths from												Ratio of deaths per 1,000 of population										No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		Male	Female		Total	Birth-rate	Cholera	Small-pox	Plague	Fever	Dysentery and diarrhoea	Respiratory diseases	Injuries						All other causes	Total	Cholera	Small-pox	Plague	Fever	Dysentery and diarrhoea	Respiratory diseases		Injuries	All other causes	From all causes	Mean of previous five years																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
													Suicide	Male	Female	Wounds or acci- dents	Snakes	Wild animals														Rabies	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
1	2	3	4	5	6	7	8	9	10	11	12						13	14	15						16																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

IMPERIAL STATEMENT No. VII.—Deaths registered from cholera in the districts of Assam during each month of the year 1940

No.	District	Circles of Registration		Villages		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of deaths per 1,000 of population			Mean ratio per 1,000 of previous five years	No.	
		Number in each district	Number from which deaths from cholera were reported	Number in each district	Number from which deaths from cholera were reported													Male	Female	Total	Male	Female	Total			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
1	Surma Valley	13	10	1,607	153	...	...	...	21	43	9	4	5	43	142	116	60	239	204	443	0.75	0.72	0.74	0.48	1
2		41	40	11,717	967	115	90	51	101	290	194	95	80	89	151	387	322	1,107	858	1,965	0.71	0.59	0.65	1.26	2	
	Total ...	54	50	13,324	1,120	115	90	51	122	333	203	99	85	132	293	503	382	1,346	1,062	2,408	0.72	0.61	0.67	1.13		
3	Assam Valley	18	5	3,188	27	...	...	...	4	5	...	...	...	1	...	1	...	8	3	11	0.02	0.01	0.01	0.65	3
4		17	16	2,738	9	1	9	10	30	49	16	18	1	4	8	4	3	89	64	153	0.16	0.13	0.15	1.06	4	
5		14	8	1,978	48	...	...	...	...	...	...	...	6	...	1	1	1	7	5	12	0.02	0.02	0.02	0.43	5
6		12	6	2,323	19	5	...	8	8	9	180	111	99	210	0.35	0.35	0.35	0.11	6
7		17	1	2,284	1	...	...	...	3	...	...	...	...	...	...	...	...	2	1	3	0.004	0.002	0.003	0.10	7
8		17	5	2,498	3	1	1	4	4	1	1	...	6	6	12	0.01	0.02	0.02	0.07	8
	Total ...	95	41	15,009	107	1	9	16	46	66	16	24	1	10	12	16	184	223	178	401	0.08	0.08	0.08	0.44		
	Total for the province.	149	91	28,333	1,227	116	99	67	168	399	219	123	86	142	305	519	566	1,569	1,240	2,809	0.35	0.30	0.32	0.73		

IMPERIAL STATEMENT No. VIII.—Deaths registered from small-pox in the districts of Assam during each month of the year 1940

No.	Districts	Circles of Registration		Villages		January	February	March	April	May	June	July	August	September	October	November	December	Total		Total	Number of deaths among children		Ratio of deaths per 1,000 of population			Mean ratio per 1,000 of previous five years	No.	
		Number in each district	Number from which deaths from small-pox were reported	Number in each district	Number from which deaths from small-pox were reported													Male	Female		Under 1 year	One to 10 years	Male	Female	Total			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
Surma Valley																												
1	Cachar	13	1	1,607	1	1	1	...	1	0.003	...	0.002	0.03	1
2	Sylhet	41	34	11,717	382	180	238	146	197	137	111	43	41	40	36	29	43	657	584	1,241	124	209	0.42	0.40	0.41	0.32	2	
Total ...																												
Assam Valley																												
3	Goalpara	18	5	3,188	21	...	1	5	4	1	1	1	1	9	5	14	0.02	0.01	0.01	0.01	3
4	Kamrup	17	13	2,738	29	9	10	23	31	7	3	2	5	3	2	1	...	52	44	96	30	37	0.10	0.09	0.09	0.19	4	
5	Darrang	14	6	1,978	20	2	3	...	...	...	4	...	...	1	5	1	1	12	5	17	1	6	0.04	0.02	0.03	0.06	5
6	Nowgong	12	6	2,323	9	...	4	5	1	3	...	2	...	6	...	...	1	9	13	22	3	8	0.03	0.05	0.04	0.21	6
7	Sibsagar	17	...	2,284	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.05	7
8	Lakhimpur	17	2	2,498	3	...	...	...	...	...	5	2	2	...	...	...	...	3	6	9	2	...	0.007	0.02	0.01	0.01	8
Total ...																												
Total for the province																												

IMPERIAL STATEMENT No. IX. —Deaths registered from fevers in the districts of Assam during each month of the year 1940

No.	Districts	Circles of registration		Villages		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of deaths per 1,000 of population			Mean ratio per 1,000 of previous five years	No.
		Number in each district	Number from which deaths from fevers were reported	Number in each district	Number from which deaths from fevers were reported													Male	Female	Total	Male	Female	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
SURMA VALLEY																									
1	Cachar.	13	12	1,607	596	565	449	458	459	544	555	580	515	442	459	457	502	3,092	2,893	5,985	9.74	10.21	9.96	10.70	1
2	Sylhet	41	40	11,717	11,077	3,267	3,022	2,602	2,311	2,762	2,460	2,846	2,555	2,794	2,578	3,054	3,135	17,840	15,546	33,386	11.43	10.65	11.05	12.24	2
Total		54	52	13,324	11,673	3,832	3,471	3,060	2,770	3,306	3,015	3,426	3,070	3,236	3,637	3,511	3,637	20,932	18,439	39,371	11.15	10.58	10.87	11.99	
ASSAM VALLEY																									
3	Goalpara	18	17	3,188	3,188	1,483	1,554	1,229	1,459	1,552	1,505	1,464	1,511	1,476	1,468	1,334	1,585	9,649	7,971	17,620	19.15	17.60	18.42	21.30	3
4	Kanrup	17	18	2,738	655	530	595	443	654	788	847	609	601	414	552	632	603	3,880	3,388	7,268	7.08	6.83	6.96	8.97	4
5	Darrang	14	13	1,978	1,817	516	589	570	738	908	430	498	598	799	767	574	657	4,085	3,559	7,644	12.08	12.09	12.08	12.93	5
6	Nowgong	12	11	2,323	64	292	374	425	553	509	554	608	536	455	443	385	470	2,999	2,605	5,604	9.43	9.35	9.39	9.90	6
7	Sibsagar	17	16	2,284	2,284	747	610	679	616	803	883	806	848	726	704	817	610	4,694	4,155	8,849	8.69	8.68	8.69	9.52	7
8	Lakhimpur	17	16	2,498	1,163	525	410	498	571	638	716	690	581	756	688	636	612	3,874	3,447	7,321	9.02	9.69	9.32	9.80	8
Total		95	91	15,009	9,171	4,093	4,132	3,844	4,591	5,198	4,935	4,675	4,675	4,626	4,622	4,378	4,537	29,181	25,125	54,306	10.90	10.66	10.78	12.15	
Total for the Province		149	143	28,333	20,844	7,925	7,603	6,904	7,361	8,504	7,950	8,101	7,745	7,862	7,659	7,889	8,174	50,113	43,564	93,677	11.00	10.06	10.82	12.08	

IMPERIAL STATEMENT No. X—Deaths registered from Dysentery and Diarrhoea in the districts of Assam during each month of the year 1940

No.	Districts	Circles of registration		Villages		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of deaths per 1,000 of population			Mean ratio per 1,000 of previous five years	No.
		Number in each district	Number from which deaths from Dysentery and Diarrhoea were reported	Number in each district	Number from which deaths from Dysentery and Diarrhoea were reported	January	February	March	April	May	June	July	August	September	October	November	December	Male	Female	Total	Male	Female	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
SURMA VALLEY																									
1	Cachar	13	11	1,607	164	79	61	86	86	157	105	88	91	93	120	98	92	635	521	1,156	2.00	1.84	1.92	2.01	1
2	Sylhet	41	40	11,717	1,382	371	269	224	177	246	225	185	151	143	261	368	374	1,670	1,324	2,994	1.07	0.91	0.99	1.22	2
Total																									
ASSAM VALLEY																									
3	Goalpara	18	16	3,188	96	6	13	18	4	15	21	8	10	7	13	19	9	92	51	143	0.18	0.11	0.15	0.23	3
4	Kamrup	17	17	2,738	188	22	16	20	31	74	24	38	28	18	16	23	19	201	128	329	0.37	0.26	0.31	0.44	4
5	Darrang	14	13	1,978	288	51	44	108	115	114	77	121	78	57	43	66	68	549	393	942	1.62	1.34	1.49	1.76	5
6	Nowgong	12	11	2,323	35	25	33	32	61	36	33	42	42	31	37	31	31	236	198	434	0.74	0.71	0.73	0.80	6
7	Sibsagar	17	16	2,284	517	104	144	139	116	139	181	173	142	141	131	131	100	877	764	1,641	1.62	1.60	1.61	2.42	7
8	Lakhimpur	17	15	2,498	135	88	77	78	65	150	178	151	117	90	114	152	65	707	618	1,325	1.65	1.74	1.69	2.62	8
Total																									
Total for the province..																									

IMPERIAL STATEMENT No. XI.—Deaths registered from Respiratory diseases in the districts of Assam during each month of the year 1940

No.	Districts	Circles of Registration		Villages		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of deaths per 1,000 of population			Mean ratio per 1,000 of previous five years	No.
		Number in each district	Number from which deaths from respiratory diseases were reported	Number in each district	Number from which deaths from respiratory diseases were reported													Male	Female	Total	Male	Female	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	SURMA VALLEY																								1
2	Cachar	13	12	1,607	112	100	80	74	79	99	80	68	79	54	49	45	63	521	349	870	1·64	1·23	1·45	1·56	1
2	Sylhet	41	40	11,717	496	178	118	116	87	97	112	121	120	62	87	99	142	862	477	1,339	0·55	0·33	0·44	0·43	2
	Total	54	52	13,324	608	278	198	190	166	196	192	189	199	116	136	144	205	1,383	826	2,209	0·74	0·46	·61	0·64	
3	ASSAM VALLEY																								3
	Goalpara	18	16	3,188	74	30	22	11	15	9	9	20	16	28	17	10	6	129	64	193	0·26	0·14	0·20	0·17	
4	Kamrup	17	15	2,738	94	18	23	8	10	19	9	14	17	17	13	20	18	113	73	186	0·21	0·15	0·18	0·24	4
5	Darrang	14	13	1,978	110	51	48	27	30	4	18	2	3	55	28	39	35	217	123	340	0·64	0·42	0·54	1·12	5
6	Nowgong	12	10	2,323	30	17	16	13	9	12	15	17	9	16	7	10	9	98	52	150	0·31	0·19	0·25	0·31	6
7	Sibsagar	17	15	2,284	185	118	80	86	84	65	68	67	86	73	100	70	71	532	436	968	0·98	0·91	0·95	1·29	7
8	Lakhimpur	17	14	2,498	69	88	116	106	75	71	92	105	96	41	93	80	66	615	414	1,029	1·43	1·16	1·31	2·12	8
	Total	95	83	15,009	562	322	305	251	223	180	211	225	227	230	258	229	205	1,704	1,162	2,866	0·64	0·49	·57	0·85	
	Total for the province.	149	135	28,333	1,170	600	503	441	389	376	403	414	426	346	394	373	410	3,087	1,988	5,075	0·68	0·48	·59	0·76	

IMPERIAL STATEMENT No. XII.—Deaths registered from plague in the districts of Assam during each month of the year 1940

No.	Districts	Circle of Registration		Villages		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of deaths per 1,000 of population			Mean ratio per 1,000 of previous 5 years	No.
		Number in each district	Number from which deaths from plague were reported	Number in each district	Number from which deaths from plague were reported	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Male	Female	Total	25	
2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	Surma Valley	13	...	1,607	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
2	Cachar	41	...	11,717	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
	Total	54	...	13,324	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	Assam Valley	18	...	3,188	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
4	Goalpara	17	...	2,738	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
5	Kamrup	14	...	1,978	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
6	Darrang	12	...	2,323	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
7	Nowgong	17	...	2,284	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
8	Sibsagar	17	...	2,498	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
	Lakhimpur	17	...	2,498	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total	95	...	15,009	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total for the Province.	149	...	28,333	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX II

PROVINCIAL

Statement showing details of registration in compulsory areas

Compulsory registration area	Estimated Population	Estimated births at 288 per 1,000 married women between the ages of 15 and 40	Number of births registered during the year	Estimated birth-rate per mille	Registered birth-rate per mille	Number of deaths registered during the year		Death-rate per mille		Number of prosecutions under Act IV (B. C.) of 1873	Number of convictions
						in deaths Including hospitals	in deaths Excluding hospitals	in deaths Including hospitals	in deaths Excluding hospitals		
1	2	3	4	5	6	7	8	9	10	11	12
Silchar ...	14,103	Not available	368	Not available	26·09	207	151	14·68	10·71	...	...
Hailakandi ...	2,337		111		47·49	47	34	20·11	14·15	6	...
Haflong ...	1,174		40		34·07	26	16	22·14	13·63	...	...
Sylhet ...	24,312		761		31·30	371	314	15·26	12·91	6	3
Maulvibazar ...	4,911		119		24·23	46	35	9·37	7·12	4	3
Karimganj ...	6,370		148		23·23	98	74	15·38	11·62	...	...
Habiganj ...	8,455		246		29·09	152	134	17·98	15·85	...	...
Sunamganj ...	6,145		214		34·83	100	71	16·27	11·55	...	...
Srimangal ...	1,685		48		28·49	29	29	17·21	17·21	...	...
Dhubri ...	10,822		432		39·92	175	130	16·17	12·01	} 103	88
Goalpara ...	7,245		284		39·20	142	115	19·60	15·87		
Gauripur ...	6,293		200		31·78	108	108	17·16	17·16		
Gauhati ...	24,540		663		27·01	275	105	11·21	4·26	7	6
Barpeta ...	17,811		769		43·17	347	131	19·48	12·97	...	...
Palasbari ...	4,237		129		30·45	43	43	10·15	10·15	...	...
Nalbari ...	3,382		56		16·56	30	30	8·87	8·86	...	...
Tezpur ...	10,717		327		30·51	215	146	20·06	13·62	} 1	1
Mangaldai ...	1,850		6		32·97	24	2	12·97	1·08		
Nowgong ...	11,959		411		34·36	189	125	15·80	10·46	22	17
Jorhat ...	9,372		276		29·45	170	117	18·14	12·49	9	...
Sibsagar ...	7,584		169		22·28	88	52	11·60	6·86	19	...
Nazira ...	3,906		100		25·60	33	33	8·45	8·45	7	...
Golaghat ...	4,930		131		26·57	187	145	37·93	29·53	3	...
Dibrugarh ...	19,545		561		28·70	372	172	19·03	8·80	} 21	8
Tinsukia ...	5,799		148		25·52	45	42	7·76	7·24		
Doom Dooma...	1,969		61		30·98	18	18	9·14	9·14		
North Lakhimpur.	2,340		68		29·06	35	21	14·96	8·97		
Total ...	223,793		6,901		30·39	3,572	2,393	15·96	10·69	208	126

Supplementary (optional) Statement VI(a) for the year 1940

Towns										Malaria		Typhus fever		Enteric fever		Kala-azar		Measles		Black water fever		Influenza		Other fever		Dysentery		Diarrhoea		Pneumonia		Pulmonary tuberculosis		Other respiratory diseases		Whooping cough							
										Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio	Deaths	Ratio				
										1	2	3	4	5	6	7	8	9	10	11	12	13	14																				
Silchar ..	..	..	..	..	..	..	..	..	19	..	..	1	..	..	..	..	16	..	23	..	17	..	9	..	8	..	8	..	8	..	9	..	8	..	..	..	..	..
Sylhet ..	..	..	..	..	..	..	..	..	6	..	3	..	..	2	..	..	82	..	20	..	15	..	21	..	9	..	9	..	7	..	21	..	..	..	..	..	..	..
Karimganj ..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	8	..	8	..	2	..	8	..	..	..	..	..	7	..	8	..	..	..	7	..	..	..		
Habiganj ..	..	..	..	..	..	..	..	..	5	..	..	1	..	..	..	..	19	..	16	..	8	..	5	..	7	..	1	..	1	..	5	..	..	..	1	..	..	..		
Dhubri ..	..	..	..	..	..	..	..	..	4	..	..	5	..	..	..	..	16	..	10	..	3	..	6	..	1	..	1	..	3	..	6	..	..	..	5	..	..	..		
Goalpara ..	..	..	..	..	..	..	..	..	47	..	..	4	..	..	1	..	6	..	9	..	..	..	22	..	1	..	1	..	9	..	23	..	..	..	9	..	..	..		
Gauhati ..	..	..	..	..	..	..	..	..	16	..	..	2	..	..	..	..	37	..	23	..	1	..	23	..	2	..	2	..	6	..	23	..	..	..	6	..	..	..		
Barpeta ..	..	..	..	..	..	..	..	..	28	..	22	1	..	..	..	..	87	..	16	..	15	..	8	..	2	..	2	..	6	..	8	..	..	..	6	..	..	..		
Tezpur ..	..	..	..	..	..	..	..	..	5	..	..	4	..	..	..	..	2	..	34	..	9	..	26	..	16	..	16	..	1	..	26	..	..	..	1	..	..	..		
Nowgong ..	..	..	..	..	..	..	..	..	31	..	..	8	..	3	..	..	3	..	16	..	11	..	19	..	2	..	2	..	8	..	19	..	..	..	8	..	..	..		
Jorhat ..	..	..	..	..	..	..	..	..	4	..	..	6	..	..	..	..	25	..	8	..	14	..	2	..	8	..	8	..	..	..	2	..	..	..	..	..	..	..
Dibrugarh ..	..	..	..	..	..	..	..	..	15	..	..	2	..	..	1	..	24	..	55	..	15	..	29	..	31	..	31	..	21	..	29	..	..	..	21	..	..	..		
Shillong ..	..	..	..	..	..	..	..	..	14	..	..	..	..	..	..	..	11	..	19	..	9	..	50	..	13	..	13	..	..	..	50	..	..	..	..	..	..	..

This table includes municipalities and small towns in which registration of vital statistics is compulsory.

A.—VACCINE DEPARTMENT

VACCINATION STATEMENT No. I.—*Shewing particulars of vaccination in the province of Assam during the year 1940-41*

No.	Districts or towns	Estimated population for the year 1940	Average number of vaccinators employed throughout the year	Total number of persons vaccinated			Average number of persons vaccinated by each vaccinator	Primary vaccination				Re-vaccination			Percentage of successful cases in which the results were known		Persons successfully vaccinated per 1,000 of population	Total cost of the Vaccination Department	Number of all successful vaccinations and re-vaccinations performed by the vaccination staff only	Average cost of each successful case performed by the vaccination staff		
				Male	Female	Total		Total	Successful			Total	Successful	Unknown	Primary	Re-vaccination						
									Under one year	One year and under six years	Total of all ages										Unknown	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
A.—DISTRICTS (EXCLUDING TOWNS)																						
1	Surma Valley and Hill Division	427,352	17	15,155	9,972	25,127	1,478	12,424	1,130	9,179	11,880	115	12,703	5,719	1,041	96.51	49.04	41.18	2,814	2 6	17,599	Rs. a. p. 0 2 7
2	Silchar Sub-division.	173,082	7	6,329	3,912	10,241	1,463	4,722	373	3,486	4,377	233	5,519	2,209	715	97.51	45.98	38.05	1,852	2 9	6,586	0 4 6
3	Hailakandi Sub-division.	36,881	6	1,888	1,305	3,193	532	1,839	89	1,084	1,647	135	1,354	355	242	96.65	31.92	54.28	2,273	10 3	2,002	1 2 2
4	Haflong Sub-division.	617,036	20	26,596	21,553	48,149	2,407	22,687	1,823	14,719	21,965	422	25,462	10,218	3,829	98.65	47.23	52.16	5,232	15 0	32,183	0 2 7
5	Sylhet Sub-division.	558,458	14	12,737	10,836	23,573	1,684	14,159	1,029	9,726	13,750	284	9,414	4,818	1,495	99.10	60.84	33.25	3,473	9 0	18,568	0 3 0
6	Karimganj Sub-division.	490,581	17	20,344	16,206	36,550	2,150	21,726	1,242	15,355	20,577	427	14,824	6,478	2,443	96.61	52.32	55.15	2,626	3 6	27,055	0 1 7
7	Maulvi Bazar Sub-division.	702,016	26	24,327	21,442	45,769	1,760	29,264	3,541	18,999	26,505	1,456	16,505	7,061	4,400	95.31	58.33	47.81	4,330	0 0	33,566	0 2 1
8	Habiganj Sub-division.	600,287	20	20,907	16,790	37,697	1,885	16,663	926	11,680	14,429	931	21,034	8,192	5,019	91.72	51.15	37.68	4,440	6 0	22,621	0 3 2
9	Sunamganj Sub-division.	219,633	6	27,190	32,051	59,241	9,873	20,353	3,210	17,143	20,353	..	38,888	22,178	1,706	100.00	59.65	193.65	3,751	9 0	42,531	0 1 5
10	Shillong Sub-division.	85,674	2	2,799	2,951	5,750	2,875	4,691	623	4,068	4,691	..	1,059	561	135	100.00	60.71	61.30	709	6 0	5,252	0 2 2
11	Jowai Sub-division.	194,676	7	6,797	4,907	11,704	1,672	7,500	942	5,584	6,526	794	4,204	2,715	227	97.32	68.27	47.47	2,481	14 0	9,241	0 4 4
12	Kohima Sub-division.	148,670	8	6,180	4,579	10,759	1,345	6,869	1,189	3,298	4,487	729	3,890	2,044	117	73.08	54.17	43.93	2,170	14 0	6,531	0 5 4
Total of Surma Valley and Hill Division.		4,254,346	150	171,249	146,504	317,753	2,118	162,897	16,117	114,321	151,187	5,526	154,856	72,548	21,369	96.07	54.35	52.59	36,156	12 0	223,735	0 2 7

13	Assam Valley Division	654,472	27	24,523	21,269	45,792	1,696	31,698	4,699	20,441	29,741	1,161	14,094	6,446	3,045	97·39	58·34	55·29	7,855	8	0	36,187	0	3	6
14	Dhubri Subdivision.	277,844	13	11,685	9,617	21,302	1,639	12,745	2,867	7,701	11,713	400	8,557	3,947	1,047	94·88	52·56	56·36	2,876	2	0	15,660	0	2	11
15	Goalpara Subdivision.	672,764	45	29,241	22,575	51,816	1,151	36,519	6,116	25,325	35,914	123	15,297	10,635	232	98·76	70·59	69·24	5,282	0	0	46,579	0	1	10
16	Gauhati Subdivision.	321,957	23	17,724	12,440	30,164	1,311	20,110	1,319	12,807	18,254	1,093	10,054	4,868	2,039	95·99	60·74	71·82	2,853	12	3	23,122	0	2	0
17	Barpeta Subdivision.	373,610	23	17,060	15,872	32,932	1,432	15,783	3,972	7,756	14,592	308	17,149	9,821	1,768	94·29	63·85	65·34	3,437	2	0	24,413	0	2	3
18	Tezpur Subdivision.	246,363	18	14,386	12,188	26,574	1,476	13,303	2,689	8,067	12,222	359	13,271	8,115	1,776	94·42	70·60	82·55	2,214	7	0	20,337	0	1	9
19	Mangaldai Subdivision.	584,639	26	28,019	18,388	46,407	1,785	31,687	9,138	18,116	30,577	4	14,720	9,074	..	96·51	61·64	67·82	5,300	9	0	39,651	0	2	2
20	Nowgong Subdivision.	354,312	18	12,832	9,884	22,716	1,262	15,783	1,362	11,360	14,262	715	6,933	2,996	1,063	94·65	51·04	48·71	2,796	3	9	17,258	0	2	7
21	Jorhat Subdivision.	353,419	13	9,589	6,786	16,375	1,260	1,311	451	10,147	11,670	603	3,264	868	911	93·30	36·89	35·47	1,329	0	0	12,538	0	1	8
22	Sibsagar Subdivision.	285,186	17	9,358	7,938	17,296	1,017	14,794	2,221	9,791	13,545	732	2,502	1,260	553	96·32	64·65	51·91	1,797	4	0	14,805	0	1	11
23	Golaghat Subdivision.	594,094	24	16,145	12,799	28,944	1,206	17,170	1,935	13,227	16,787	103	11,774	6,536	4,113	98·36	85·32	39·26	4,646	14	0	23,323	0	3	2
24	Dibrugarh Subdivision.	161,500	8	7,606	6,765	14,365	1,796	8,602	1,126	6,228	8,294	109	5,763	2,598	2,472	97·66	78·94	67·44	1,737	0	6	10,892	0	2	7
25	Tura Subdivision.	199,656	7	9,295	8,226	17,521	2,503	9,262	6,474	1,427	7,901	551	8,259	4,346	706	90·70	57·54	61·34	1,703	2	0	12,247	0	2	3
	Total of Assam Valley Division.	5,079,887	262	207,457	164,747	372,204	1,421	240,567	44,369	152,393	225,502	6,261	131,637	71,510	19,725	96·24	63·90	58·47	43,829	0	6	297,012	0	2	4
26	Imphal ..	406,216	9	12,844	9,540	22,384	2,487	15,987	6,311	4,767	12,914	1,655	6,397	4,075	874	90·10	73·78	41·82	3,741	0	0	16,989	0	3	6
27	Sadiya Subdivision.	59,531	5	2,731	2,130	4,861	972	2,321	634	940	2,006	315	2,540	1,197	1,343	100·00	100·00	53·80	2,120	7	6	3,203	0	10	7
28	Balipara Frontier Tract Subdivision.	6,529	1	515	369	884	884	246	39	126	211	1	638	453	16	86·12	72·83	101·70	226	3	9	664	0	5	5

A.—VACCINE DEPARTMENT

VACCINATION STATEMENT No. I.—Showing particulars of Vaccination in the Province of Assam during the year 1940-41

No.	Districts or Towns	Estimated population for the year 1940	Average number of vaccinators employed throughout the year	Total number of persons vaccinated			Average number of persons vaccinated by each vaccinator	Primary vaccination				Re-vaccination			Percentage of successful cases in which the results were known		Persons successfully vaccinated per 1,000 of population	Total cost of the Vaccination Department	Number of all successful vaccinations and re-vaccinations performed by the vaccination staff only	Average cost of each successful case performed by the vaccination staff only	
				Male	Female	Total		Successful			Total	Successful	Unknown								
								Under one year	One year and under six years	Total of all ages											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
B TOWNS																					
Surma Valley and Hill Division.																					
1	Silchar ..	14,103	1	1,605	935	2,540	2,540	403	286	111	398	4	2,137	242	121	99.75	12.004	45.38	408 0 0	640	0 10 2
2	Hailakandi ..	2,337	..	78	61	139	..	75	55	19	75	..	64	40	4	100.00	66.67	49.21	60 0 0	115	0 8 4
3	Haflong ..	1,174	..	35	37	72	..	32	10	15	28	1	40	12	..	90.32	30.00	34.07	..	40	..
4	Sylhet ..	24,312	2	2,170	655	2,825	1,413	474	258	169	440	22	2,351	761	211	97.35	35.56	49.40	622 7 0	1,201	0 8 4
5	Karimganj ..	6,370	1	908	206	1,114	1,114	187	81	58	185	2	927	315	56	100.00	36.17	78.49	194 7 0	500	0 6 3
6	Maulvi Bazar ..	4,911	1	369	258	627	627	93	87	..	93	..	534	259	51	100.00	53.62	71.68	62 0 0	352	0 2 10
7	Srimangal ..	1,685	1	27	21	48	48	45	18	27	45	..	3	..	..	100.00	..	26.71	38 0 0	45	0 13 6
8	Habiganj ..	8,455	1	359	176	535	535	250	79	149	243	7	285	79	39	100.00	32.11	38.08	182 0 0	322	0 9 0
9	Sunamganj ..	6,145	1	669	188	857	857	290	64	149	277	4	567	173	82	96.85	35.67	73.23	106 0 0	450	0 3 9
10	Shillong ..	24,764	1	5,606	5,246	10,852	10,852	734	476	258	734	..	10,118	..	10,118	100.00	..	29.64	466 12 0	734	0 10 2
11	Jowai ..	3,404	..	74	64	138	..	83	23	60	83	..	55	21	34	100.00	100.00	30.55	9 6 0	104	0 1 5
12	Kohima ..	2,872	..	384	129	513	..	98	18	75	93	2	415	160	23	96.88	40.82	88.09	..	253	..
Total of Surma Valley and Hill Division.		100,532	9	12,284	7,976	20,260	2,251	2,764	1,455	1,090	2,694	42	17,496	2,062	10,739	99.97	30.52	47.31	2,149 0 0	4,756	0 7 3

Assam Valley Division																									
13	Dhubri	10,822	1	2,242	1,084	3,326	3,326	415	131	225	382	18	2,911	1,469	605	96-22	63-70	171-04	284	7	0	1,851	0	2	6
14	Goalpara	7,245	1	446	183	629	629	248	134	113	248	..	381	155	158	100-00	69-51	55-62	61	12	6	403	0	2	5
15	Gauripur	6,293	1	272	232	504	504	174	153	17	170	..	330	117	24	97-70	38-24	45-61	299	15	0	287	1	0	9
16	Gauhati	24,540	3	2,160	1,011	3,171	1,057	758	285	376	684	37	2,413	669	769	94-87	40-69	55-13	531	7	6	1,353	0	6	3
17	Barpeta	17,811	1	379	303	682	682	592	282	193	579	3	90	6	10	98-30	7-50	32-84	216	0	0	585	0	5	11
18	Palashbari	4,237	..	34	38	72	..	70	15	55	70	..	2	2	..	100-00	100-00	16-99	48	0	0	72	0	10	8
19	Nalbari	3,382	1	63	43	106	106	100	23	61	93	6	6	3	..	98-94	50-00	28-39	38	6	6	96	0	6	5
20	Tezpur	10,717	1	275	205	480	480	302	201	81	282	6	178	65	6	95-27	37-79	32-28	387	12	9	347	1	1	11
21	Mangaldai	1,850	1	49	35	84	84	54	14	32	48	5	30	5	3	97-96	18-52	28-65	204	0	0	53	3	13	7
22	Nowgong	11,959	1	1,088	279	1,367	1,367	428	255	165	427	..	939	242	62	99-77	27-59	55-94	364	10	0	669	0	8	9
23	Jorhat	9,372	1	295	191	486	486	290	204	70	274	12	196	..	..	98-56	..	29-24	318	12	0	274	1	2	7
24	Sibsagar	7,584	1	287	424	711	711	222	20	172	193	..	489	86	..	86-91	17-59	36-79	216	5	0	279	0	12	5
25	Golaghat	4,930	1	104	146	250	250	159	87	60	148	..	91	41	13	93-08	52-56	38-34	305	6	6	189	1	9	10
26	Nazira	3,906	1	126	55	181	181	107	41	41	84	..	74	30	..	78-50	40-54	29-19	328	2	0	114	2	14	0
27	Dibrugarh	19,545	1	548	365	913	913	575	346	215	561	5	338	60	264	98-42	81-08	31-77	330	0	0	621	0	8	6
28	Tinsukia	5,799	1	64	80	144	144	130	30	95	126	1	14	8	6	97-67	100-00	23-11	279	1	0	134	2	1	4
29	Doom Dooma	1,969	1	27	24	51	51	51	6	35	43	3	..	..	..	89-58	..	21-84	..	..	..	43	..	..	..
30	North Lakhimpur	2,340	1	462	76	538	538	97	40	45	91	..	441	153	270	93-81	89-47	104-27	55	5	0	244	0	3	8
31	Tura	2,240	..	40	33	73	..	57	29	25	54	..	16	5	2	94-74	35-71	26-34	..	..	..	59	..	..	..
Total of Assam Valley Division.		156,541	19	8,961	4,807	13,768	735	4,829	2,396	2,079	4,557	96	8,939	3,116	2,192	96-28	46-18	19-02	1,269	6	9	7,673	0	8	11
32	Imphal	96,874	3	2,179	1,603	3,782	1,261	2,733	1,308	618	2,151	327	1,049	630	162	89-40	71-03	28-71	895	6	0	2,781	0	5	2
33	Sadiya	5,098	1	321	79	400	400	295	98	69	208	41	105	80	25	81-89	100-00	56-49	..	..	..	288	..	..	..
Total of Towns		359,045	32	23,745	14,465	38,210	1,194	10,621	5,257	3,856	9,610	506	27,589	5,888	13,118	95-00	10-69	43-16	7,313	12	9	15,498	0	7	7
Total of Vaccine Department.		10,165,554	459	418,541	337,755	756,296	1,648	432,639	72,727	276,403	401,430	14,264	323,657	155,671	56,445	95-95	58-26	54-80	93,387	4	6	557,101	0	2	8
Total of Dispensary staff		..	..	..	..	6,100	..	1,644	395	637	1,115	79	4,456	2,053	932	90-42	58-26	..	..	..	..	..	..	..	..
Total of Tea Gardens		..	..	33,199	31,022	64,221	..	33,908	17,609	11,876	32,520	118	30,313	17,256	1,710	96-24	60-33	..	..	..	..	..	..	..	..
Total of Jails, Mental Hospital, Police Hospitals and Infectious diseases hospitals.		..	..	4,163	91	4,254	..	67	6	7	51	..	4,187	2,284	477	76-12	61-56	..	..	..	..	..	..	..	..
Total of Railway Dispensaries.		..	..	2,461	714	3,175	..	459	83	287	428	26	2,716	760	605	98-85	36-00	..	..	..	..	..	..	..	..
Total of private Medical Practitioners.		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Shillong Vaccine Depot		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Grand total		10,165,554	459	458,364	369,582	834,046	1,817	468,717	90,820	289,210	435,844	14,487	365,329	178,024	60,169	95-95	58-34	54-80	108,966	8	6	557,101	0	3	2

Summary

	Total number of persons vaccinated		Total number of operations performed		Percentages of successful cases in which the results were known		Average number of persons vaccinated by each vaccinator		Number of children successfully vaccinated		Ratio of successful vaccinations per 1,000 of population	Total cost of the Department	Number of all successful vaccinations performed	Average cost of each successful case
	Primary	Re-vaccination	Primary	Re-vaccination	Primary	Re-vaccination	Vaccinators employed	Persons vaccinated by each vaccinator	Under one year	One and under six years				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
By special staff—												Rs. a. p.		Rs. a. p.
Districts excluding towns (Subdivisions).	422,018	296,068	422,018	296,068	95·97	59·26	427	1,682	67,470	272,547	55·23	86,073 7 9	541,603	0 2 7
Towns ...	10,621	27,589	10,621	27,589	95·00	40·69	32	1,194	5,257	3,856	43·16	7,313 12 9	15,498	0 7 7
Total ...	432,639	323,657	432,639	323,657	95·95	58 26	459	1,648	72,727	276,403	54·80	93,387 4 6	557,101	0 2 8
By dispensary staffs ...	1,644	4,456	1,644	4,456	90·42	58·26	...	...	395	637	...	...	...	...
By private Medical Practitioners.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
By Railway dispensaries	459	2,716	459	2,716	98·85	36·00	...	...	83	287	...	...	...	...
By other agencies, Tea Gardens, Jail hospitals, Police hospitals, Mental hospital and infectious diseases hospitals.	33,975	34,500	33,975	34,500	96·20	60·47	...	...	17,615	11,883	...	...	...	...
Total ...	36,078	41,672	36,078	41,672	96·25	58·90	...	...	18,093	12,807	...	...	...	...
Shillong Vaccine Depot ...	...	...	...	...	...	...	...	...	...	...	...	15,579 4 0	...	...
Grand total ...	468,717	365,329	468,717	365,329	95·95	58·34	459	1,817	90,820	289,210	54·80	1,08,966 8 6	557,101	0 3 2

B.—DISPENSARY VACCINATION

IMPERIAL STATEMENT No. II.—Showing Dispensary Vaccination in the Province of Assam during the year 1940-41

Districts	1	2	3	4	5	Primary vaccination				Re-vaccination			Percentage of successful cases in which the results were known		Percentage of unknown cases to total cases		
						Total	Successful			Total	Successful	Unknown	Primary	Re-vaccination	Primary	Re-vaccination	
							Under one year	One year and under six years	Total of all ages								
		6	7	8	9	10	11	12	13	14	15	16	17				
Cachar	3	...	3	17	101	148	6	1	...	...	...	100·00	...	...
Sylhet	164	...	3	46	77	202	18	312	149	20	93·67	51·03	3·66	6·41
Khasi and Jaintia Hills	221	...	3	3	50	53	...	835	52	536	99·51	17·39	8·15	64·19
Naga Hills	69	...	3	10	27	37	...	136	58	22	76·81	50·88	...	16·18
Lushai Hills	78	...	3	1	40	48	4	190	95	...	47·44	50·00	...	...
Goalpara	52	...	3	...	...	...	...	157	90	29	100·00	70·31	7·69	18·47
Kamrup
Darrang	22	...	...	...	...	21	...	733	540	45	95·45	78·49	...	6·14
Nowgong
Sibsagar	216	...	2	29	...	216	...	55	18	...	100·00	32·73	...	...
Lakhimpur
Garohills	249	...	94	116	...	210	15	382	164	43	89·74	48·38	6·02	11·26
Manipur State	165	...	56	27	...	107	35	545	195	120	82·31	45·88	21·21	22·02
Sadiya Frontier Tract	125	...	35	90	...	125	...	146	47	99	100·00	100·00	...	67·81
Balipara Frontier Tract	280	...	152	56	...	245	1	964	644	18	87·81	68·08	0·36	1·87
Total	1,644	...	637	395	...	1,415	79	4,456	2,053	932	90·42	58·26	4·81	20·92

IMPERIAL STATEMENT No. III

Showing the number of persons primarily vaccinated and the number of those who were successfully vaccinated in the province of Assam in each of the under-mentioned official years

Vaccinating Agents	Persons primarily vaccinated																			
	1931-32		1932-33		1933-34		1934-35		1935-36		1936-37		1937-38		1938-39		1939-40		1940-41	
	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated	Total number	Number successfully vaccinated
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Government	41,320	37,769	35,322	31,076	37,101	30,405	59,210	32,596	37,114	28,573	49,047	37,407	39,926	32,576	42,329	35,388	44,460	37,356	52,832	47,645
Dispensaries	2,753	2,108	2,139	1,629	2,161	1,759	3,414	2,862	5,091	3,359	2,388	1,839	1,694	1,204	1,655	1,431	2,694	2,007	1,644	1,415
Municipal	5,900	5,542	5,846	5,582	5,603	5,336	6,376	6,106	9,926	9,481	5,897	5,485	6,776	6,299	6,775	6,486	8,369	7,746	7,248	6,922
Local Funds	250,148	221,525	284,814	257,327	311,975	272,296	296,742	272,775	325,199	293,466	323,815	272,546	337,418	297,724	359,457	325,249	365,770	338,626	353,740	331,699
Licensed Vaccinators	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Apprentices	600	555	446	406	643	507	1,218	1,142	260	251	1,202	1,168	782	705	2,631	2,231	394	388	99	99
Native States	17,551	15,484	15,530	14,782	16,104	14,219	16,129	15,185	15,599	1,285	24,445	19,908	16,955	13,328	17,470	14,500	17,386	14,028	18,720	15,065
Tea Gardens	..	..	..	..	..	..	..	..	..	..	30,628	28,022	33,835	31,326	32,838	32,546	31,910	29,717	33,908	32,520
Jails, Mental Hospital, Police Hospitals and Infectious diseases hospitals.	..	..	..	..	..	..	..	..	..	..	152	120	122	68	19	5	76	61	67	51
Railway Dispensaries	..	..	..	..	..	..	..	..	..	..	343	326	509	471	626	608	512	488	459	428
Total	318,272	282,983	344,097	310,802	373,587	324,522	383,089	330,666	393,189	336,415	437,917	366,821	438,017	383,701	463,800	418,444	471,571	430,417	468,717	435,844

STATEMENT IV.—*Showing the number of Vaccinations performed in Municipal towns on children under one year of age during the year 1940-41*

Districts	Towns	Number of births during the year	Number of deaths among children under one year during the year	Number of successful vaccinations on children under one year during the year ending 31st March 1941	Date of extension of Vaccination Act to town
1	2	3	4	5	6
Cachar ...	{ Silchar ...	365	26	178	21st January 1892.
	{ Hailakandi ...	87	9	21	10th November 1922.
	{ Sylhet ...	780	84	249	1st October 1882.
	{ Habiganj ...	244	36	40	11th December 1913.
Sylhet ...	{ Sunamganj ...	218	22	64	28th June 1915.
	{ Karimganj ...	147	25	81	27th July 1915.
	{ Maulvi Bazar ...	100	5	87	16th April 1916.
	{ Srimangal ...	38	6	14	9th October 1936.
Khasi and Jaintia Hills.	Shillong ...	815	59	476	21st June 1895.
	Total of Surma Valley and Hill Division.	2,794	272	1,210	
Goalpara ...	{ Dhubri ...	445	52	236	13th February 1891.
	{ Goalpara ...	351	34	247	12th November 1890.
	{ Gauripur ...	214	38	82	15th September 1922.
	{ Gauhati ...	705	50	433	August 1882.
Kamrup ...	{ Barpeta ...	782	53	210	29th October 1915.
	{ Palashbari ...	124	13	82	16th November 1927.
	{ Nalbari ...	59	9	47	9th August 1940.
Darrang ...	{ Tezpur ...	319	33	108	22nd May 1907.
	{ Mangaldai ...	54	7	44	12th October 1916.
Nowgong ...	Nowgong ...	421	49	212	7th April 1897.
	{ Sibsagar ...	173	15	20	21st January 1892.
Sibsagar ...	{ Jorhat ...	255	36	171	12th April 1892.
	{ Golaghat ...	131	5	40	24th March 1892.
	{ Nazira ...	98	11	41	1st December 1916.
Lakhimpur ...	{ Dibrugarh ...	580	54	145	September 883.
	{ Doom Dooma ...	61	5	6	21st October 1918.
	{ Tinsukia ...	144	9	123	31st August 1922.
	{ North Lakhimpur	71	6	40	22nd June 1932.
	Total of Assam Valley Division.	4,987	479	2,287	
	Total for the Province.	7,781	751	3,497	

IMPERIAL STATEMENT No. V.—Showing side by side the ratio (per 1,000 of population) of deaths from small-pox and the number of successful vaccinations during the ten years ending 1940-41

		1931-1932		1932-1933		1933-1934		1934-1935		1935-1936		1936-1937		1937-1938		1938-1939		1939-1940		1940-1941	
1		Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations	Ratio of deaths from small-pox	Number of successful vaccinations
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	Cachar..	..	19,255	..	24,418	..	22,822	..	27,002	..	28,069	0·06	28,725	0·11	33,434	..	26,863	..	25,321	·002	26,986
	Sylhet	0·01	108,508	0·004	116,176	0·02	111,605	0·02	120,612	0·04	122,728	0·25	143,670	0·66	167,689	0·48	183,301	0·66	218,437	0·25	137,160
	Khasi and Jaintia Hills ..	0·003	14,098	..	15,222	..	13,654	0·007	18,494	0·007	21,296	..	18,992	..	18,384	..	22,983	..	33,128	0·04	48,875
	Naga Hills	..	6,044	..	6,758	..	6,432	..	8,546	..	7,951	..	13,140	..	13,380	..	12,015	..	12,667	..	9,605
	Lushai Hills	..	4,914	..	7,499	..	7,986	..	4,317	..	3,113	..	3,083	..	9,156	..	6,508	..	5,469	..	6,663
	Goalpara	9·29	65,171	0·30	110,298	0·04	94,802	0·01	74,769	0·002	56,281	0·003	65,624	0·008	54,503	0·002	61,342	0·02	57,025	0·009	54,526
	Kamrup	0·17	46,086	0·17	41,043	0·07	46,478	0·10	46,534	0·26	82,942	0·27	55,250	0·12	48,556	0·08	53,034	0·12	62,953	0·08	71,807
	Darrang	0·04	24,716	0·05	28,454	0·04	30,935	0·06	38,890	0·05	42,799	0·06	49,973	0·04	26,107	0·04	45,829	0·12	46,018	0·02	45,711
	Nowgong	..	28,507	..	28,051	0·002	28,922	0·03	37,916	0·04	51,159	0·06	52,967	0·35	44,612	0·54	45,930	0·12	42,547	0·06	40,320
	Sibsagar	0·07	34,567	0·06	30,493	0·04	35,214	0·01	36,946	0·13	44,429	0·02	42,484	0·006	33,770	0·03	40,405	0·07	38,519	..	45,691
	Lakhimpur	0·11	18,877	0·03	24,440	0·008	28,118	0·01	34,550	0·003	32,652	0·003	29,148	0·006	29,811	0·01	30,011	0·01	31,540	0·01	35,257
	Garo Hills	0·15	14,948	0·03	13,978	0·06	21,342	0·04	18,855	0·01	13,852	..	11,484	0·005	10,268	..	11,766	0·04	12,312	0·005	12,680
	Manipur State ..	..	18,726	..	20,313	..	20,293	..	7,890	0·35	29,127	0·39	30,042	0·22	21,462	0·01	19,973	..	19,168	..	20,072
	Sadiya Frontier Tract ..	..	4,123	0·09	2,878	..	2,552	..	5,131	..	8,529	..	2,980	..	2,763	..	2,273	..	3,161	..	3,663
	Balipara Frontier Tract ..	..	291	..	478	..	514	..	400	..	669	..	456	..	366	..	488	..	396	..	1,553
	Total ..	0·07	408,831	0·06	470,499	0·03	471,669	0·02	480,852	0·07	545,596	0·12	547,928	0·25	514,261	0·19	562,681	0·23	608,661	0·09	560,569

IMPERIAL STATEMENT NO. VI.—*Showing the vaccinal conditions of Small-pox patients admitted to hospitals during the year 1940-41.*

Age	Vaccinated as evidenced by presence of one or more vaccination cicatrices		Stated to have been successfully vaccinated but no vaccination cicatrix present	Stated to be unvaccinated (or vaccinated unsuccessfully) and no vaccination cicatrix present	Previously unvaccinated but vaccinated during incubation of Small-pox	Stated to have been successfully re-vaccinated	
	Within the last five years	More than five years previously				Within the last five years	More than five years previously
1	2	3	4	5	6	7	8
Under 1 year	...	...	...	1	2	1	...
1	...	...	...	...	...	...	...
2	1	...	...	1	1	1	...
3	...	...	1	2	1	...	...
4	...	...	...	...	1	1	...
5	...	...	...	...	1	...	...
6	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...
8	...	1	...	1	...	1	1
9	...	...	...	...	...	...	...
10	...	1	...	...	...	...	...
11	...	...	...	...	...	...	...
12	1	1	...	...	...	...	...
13	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...
15	...	1	...	...	...	...	...
20	1	2	...	1	...	1	...
25	3	3	...	...	...	1	...
30	5	3	2	2	...	1	...
35	5	...	1	...	...	2	...
40	1	1	1	1	...	...	...
50	3	1	1	...	...	1	...
60	...	...	2	...	...	...	...
70	...	...	...	...	...	...	...
80 and upwards	...	...	...	...	...	...	...
Total ...	20	14	8	9	6	10	1

GOVERNMENT OF ASSAM
ORDERS BY THE GOVERNOR

Resolution on the Public Health Report for 1940.

*Extract from the proceedings of the Government of Assam in the Medical Department,
Public Health Branch, No. MPH.4/42, dated the 5th February 1942.*

READ :—The Public Health Report for 1940.

RESOLUTION

The climatic agricultural and economic conditions during the year were on the whole satisfactory. There was deficiency of rain in January and April, and excess during March. The prices of agricultural produce tended to rise.

2. The vital statistics were collected in the same way as in previous years, and their reliability may be taken to be the same. As explained in the report, the ratios for deaths and births have been calculated on the “estimated population”, and the resultant death-rate and birth-rate are 17·20 against 19·25 for 1939 and 28·21 against 28·44 for 1939 for the whole province. The death-rate for infants again decreased, being 141·75 against 149·73 for 1939. The mortality among infants is still heavy, and is due largely to ignorance of mothers, improper feeding, and exposure of infants to insanitary surroundings. The need for expansion of child-welfare and maternity work is pressing.

3. The chief death-causing diseases were fevers, diarrhoea and dysentery, respiratory diseases, cholera, and small-pox. The highest mortality for fevers, which include malaria, kala-azar and other diseases having fever as a predominant symptom, was recorded in Goalpara, and the lowest in Kamrup. As in previous years quinine and cinchona febrifuge were distributed free to indigent malaria patients throughout the province. The method of diagnosis and treatment for kala-azar was the same as in the previous year. The number of deaths was more by 198, and the number of patients treated by 3,393. Numerous surveys were carried out in the districts including Cachar, Sylhet, Goalpara, Kamrup, Darrang, the Garo Hills, Nowgong and Sibsagar. The incidence of kala-azar, as a result of survey work, was found to be higher than in the previous year. An indoor hospital with 50 beds was built at Golaghat for serious bed-ridden and complicated cases, and two new Public Health dispensaries were opened during the year under report. Government have noted with interest the suggestions of the Director of Public Health with regard to further preventive measures and it is hoped that experiments for controlling the suspected vector of the disease may be carried out.

The figure for deaths from typhoid fever is shown as 60, including 12 for Barpeta and 8 for Dibrugarh. The disease is difficult to diagnose, and statistics may not be reliable. Contaminated water-supply and insanitary towns must contribute to the prevalence of the disease, and Government would again draw the attention of municipalities that have failed to provide uncontaminated sources of water-supply or have otherwise paid insufficient attention to sanitary measures, to their responsibility in the matter.

The reported figure for deaths from cholera was 2,809 against 3,020 in 1939. There was no serious epidemic in any district. Intensive preventive inoculation is being carried out since 1938 with the aim of protecting persons in infected or threatened villages. The number of inoculations carried out in 1940 was 335,559 against 113,727 in 1939, but it appears that further investigation is required for judging the success of the preventive measures.

The reported figure for deaths from dysentery and diarrhoea was 8,964 against 11,641 in the previous year, and for deaths from small-pox 1,400 against 2,197.

4. Lepers treated in leper asylums and other centres under the Medical and Public Health Departments numbered 4,227. A special Leprosy Officer was appointed and trained during the year. He is now engaged in a survey with a view to devising a better organisation for preventing the spread of leprosy. Rai Sahib Dr. Isaac Santra visited Assam at the end of the year, suggesting certain measures, which are now under Government's consideration, for improving the facilities for treatment. Propaganda was carried on with magic-lantern demonstrations by Public Health Officers as before.

5. *Tuberculosis*.—The Chest Clinic at Shillong worked with increasing popularity. The number of patients treated was 206 against 132 in 1939. An X-ray plant, installed in November, greatly increased the usefulness of the clinic. It is noted that the honorary work of three private medical practitioners has greatly assisted its success, and Government hope that this clinic and the help received will serve as examples in other districts, where the organisation of tuberculosis work, under the Tuberculosis Association of Assam, still proceeds slowly. In the present year, arrangements are being made for considerable improvement in the facilities for treatment in Shillong.

6. *Food Adulteration*.—The working of the Assam Pure Food Act is still not satisfactory, and Government have urged on the authorities concerned the necessity for taking up the matter energetically and seriously. Government agree with the Director of Public Health that it is not lack of staff or the amount of the fees charged for examination of samples that stand in the way of improvement, and trust that the local bodies will be more vigilant in checking adulteration.

7. *Maternity and Child Welfare*.—Mention has already been made of the importance of such work, which is greatly hampered for lack of funds. Trained staff is lacking, and there is no recognised institution for the training of midwives in the province. Maternity and child-welfare work continued to be carried on mainly under the Red Cross Society. Government note with appreciation that the welfare centres at Shillong, Sylhet and Nowgong continued to do good work, that there was increased interest in the Goalpara District, and that the Cachar centre has earned special praise from the Director of Public Health. The Shillong Municipal Board made liberal grants for the upkeep of the Shillong centre. The Siva-Sundari Narishikshasram provided a course of training for dhais, in accordance with the regulations of the Victoria Memorial Scholarship Fund, New Delhi. It is hoped that a Bill for the registration of nurses and midwives will be passed in the near future and that Government will be able to extend facilities for training.

8. The Government thank Lieut. Colonel Hesterlow for the efficient administration of this department, and for the thoughtful suggestions made in this report for improvement of Public Health work in this Province, which will receive their careful attention.

Order—Ordered that a copy of the Resolution be published in the *Assam Gazette* for general information.

By order of the Governor of Assam,

C. B. C. PAINE,

Shillong,
The 5th February 1942.

Secretary to the Government of Assam in
the Education and Local Self-Government Departments.



